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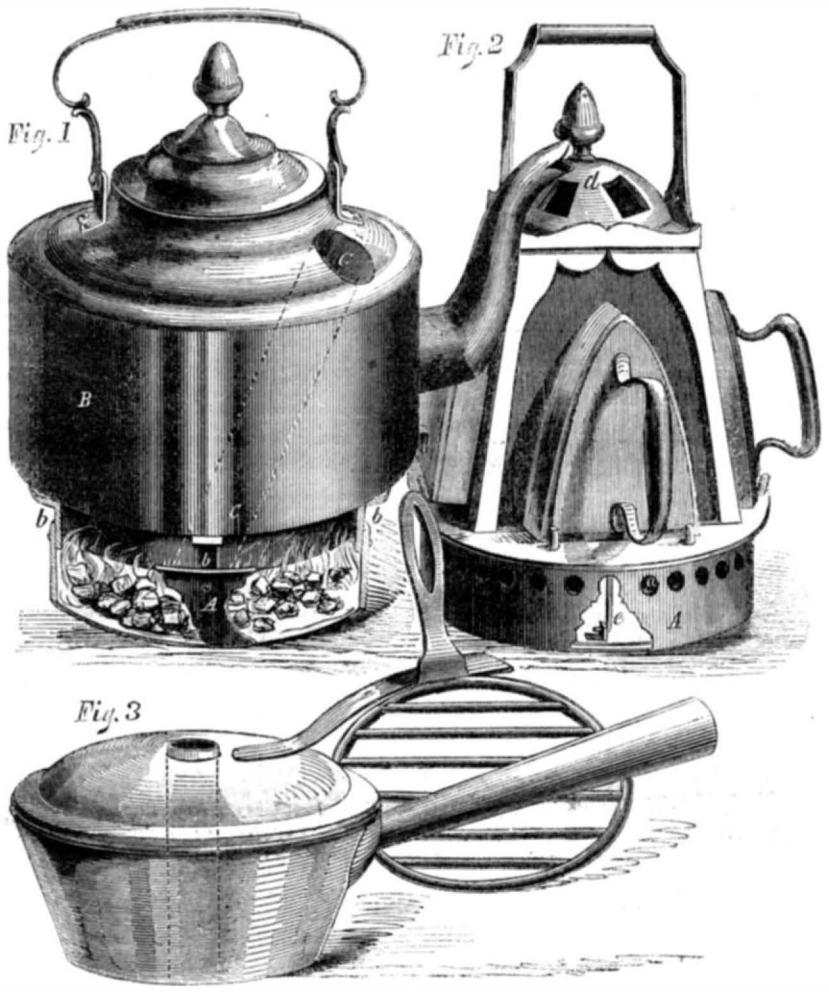
Peat for Fuel.

In low situations, where the water has no free outlet, and yet where it cannot collect to form ponds or lakes, certain small plants, peculiar to such situations, accumulate and grow. When these decay, they are converted into that substance called *peat*, which consists almost entirely of roots, stems and leaves matted together. In some countries, the accumulation of such vegetable matter covers large tracts of several miles in extent, and are called "peat bogs," such as in Ireland; we call them peat meadows and peat swamps. These bogs vary in depth from a few feet to several yards, and are, in general too soft for the foot of man to tread, yet there are passable foot-roads through most of them. Peat is employed for fuel in the greater part of Ireland, in several districts of France, Germany, and Holland, and in the Highlands of Scotland. The substance is soft when found in the bog, and is easily cut, with a long narrow spade, into pieces resembling bricks; these, when exposed to the sun and air, become dry and hard, and are very inflammable. The quality of peat is very variable, just like coal. The best kind is compact, and nearly black; the inferior kind is light, and of a brown color. The lower strata of deep peat bogs make the best peat, because more compact; and they more nearly resemble bituminous coal in character.

Owing to the great quantity of ashes which peat produces, it has, until within a few years, been little used in furnaces or grates; it was, therefore, generally burned like wood, on the old-fashioned hearths, on *andirons*. In Germany, France and Ireland, peat has, of late, been subjected to severe pressure, like clay in brick-making, and thereby reduced to one third its natural bulk, by which process it has been rendered nearly as compact as coal, and as available for all purposes in which fuel is employed. Peat can be charred like wood, and its charcoal is reputed to be of a very superior character for making iron and steel.

There are quite a number of peat bogs or meadows in various sections of our country, to which little attention has heretofore been paid, owing to the abundance of wood fuel; the time has now arrived when, of necessity, more attention must be paid to them. In Worcester, Mass., peat has been brought into use by Messrs. Washburn & Co., and has proved more valuable than was expected. From a peat meadow, (as described on page 379, Vol. XII, SCIENTIFIC AMERICAN,) they have taken out and used about 2,000 cords, which, when well seasoned, produces as much heat as an equal bulk of dry oak wood. We have no doubt that every peat meadow in our country might be rendered valuable for fuel, especially by subjecting it to pressure, a process, we believe, which has not yet been tried among us.

WESTLAKE'S SUMMER STOVE.



In the heat of summer, although we never need any fire in our rooms, we often want hot water for tea, coffee, and similar purposes; flat irons require to be heated, and food cooked. To effect these desired ends without creating much or any external heat, is the aim of the simple little contrivance shown in our engravings.

The invention consists in having a little iron plate box, A, having a number of holes, *a*, punched in its rim, as in Fig. 2, or suspended by little hooks, *b*, as in Fig. 1. This box is placed in the hole in the stove, and a pint of charcoal is put into it, a match applied, and, if hot water is required, the kettle, B, (having a pipe, C, shown by the dotted lines open at both ends, passing through it,) placed on the fire, the pipe feeding the fire with air. A patent was obtained on the peculiar construction of the kettle on the 11th of August, 1857.

The inventor states that one pint of charcoal burnt in this stove will boil five pints of water in twelve minutes, and yet not in any way warm the room. A saucepan with a tube through it, as seen in Fig. 3, may be applied onto the stove, or a gridiron of the shape seen in the same figure. Fig. 2 shows the invention applied to an apparatus for heating flat irons, the heater, C, being attached to the box by the little hook, *e*, and instead of a tube there is a shut-off arrangement, *d*, on its top. In winter these utensils can be placed on the stove itself; so they are equally useful in winter or summer. Those persons who have tried them pronounce them excellent in their operation.

The State Fair at Janesville, Wis., awarded a premium to the inventor, W. Westlake, of Milwaukie, Wis., who will furnish any further information.

Defective Ocean Steamers.

When the steamer *Central America* was lost in the gulf of Florida, a universal howl of indignation was heard throughout the whole country in reference to the bad management on board, as expressed in some letters of passengers who had been rescued. The alleged bad management pointed to the engineering department as acting independent and contrary to the orders of the lamented commander, Lieut. Hearndon. The report of a committee of merchants, in this city, appointed to examine into the causes of this disaster, virtually laid the whole blame on the engineering department. In opposition to such views, the Inspectors of Steamers for this district, who licensed the engineers, reported that they had examined into the case, and found that the engineers did their duty, and so they gave them a complete whitewashing. Basing our conclusions on such reports, we would be forced to say "nobody was to blame for the disaster." We, however, have very little confidence in the majority of reports on questions in which those who are appointed as the examiners have any interest; such reports are generally unreliable.

One fact has recently come to light, which goes to show that the *Central America* was, in all likelihood, unseaworthy, and unfit to have been employed for conveying passengers; also that a large number of other vessels, which should not be allowed to go to sea, are in the same condition.

On the 12th inst., Mr. Benjamin, in the United States Senate, brought in a bill to amend the law relating to changing the names of vessels, and in doing so, he stated that he had a list of ninety-two vessels, the names of which had been changed within eighteen months. Thirty-one of them had either been lost at sea, or the means of loss of life and property. The names were changed to deceive the public, when the vessels were rotten and unseaworthy. He instanced the *Central America*, whose name was changed from *George Law*. One vessel had been condemned and her name changed three times, and she went to sea and was never heard of afterward.

The bill was passed. Good!

Statistics of Food.

In Hunt's *Merchant's Magazine* for the present month, there are some interesting statistics, from which we cull the following information:—

"In the thirty-nine years from 1819 to 1858, the average price of mess beef has been $10 19 per barrel, and mess pork, $14 63. Rice has averaged $3 67 per 100 lbs, and coffee 10⅛ cents per lb., while tea has maintained a price of 50 cents per pound. In the United Kingdom, in 1841, there was an average of one pound six ounces of tea, one pound one ounce of coffee, and seventeen pounds of sugar consumed by each individual; while in 1856, there were two pounds four ounces of tea, one pound four ounces of coffee, and twenty-eight pounds two ounces of sugar consumed by each person."

We look upon these facts with gladness, because they indicate the replacing of temperate and healthy beverages for John Bull's well-known drinks, beer and whisky.—EDS.

Skeleton Flowers and Leaves.

The leaves and flowers of plants are all formed of a frame-work, beautiful and delicate in the extreme, composed of woody fiber, corresponding to the skeleton of animals; and between the interstices of these fibers is gathered the softer material, forming the leaf or flower. If the leaf be taken and placed in water, and left in the same water for from three to four months, all this soft matter decays, and the stem may be taken in the hand, and the refuse shaken away. There remains behind a network or skeleton of the original object, which can be bleached with a little lime, and it forms a most lovely decoration for the mantel-piece of the tasty. The leaves of the ivy, the stinkpod of the stromonium, (which is now to be found exactly ripe for steeping), the oak leaf, and, in fact, every production of the vegetable world, are not only applicable, but show themselves with greater beauty when skeletonized than when perfect.

The Soulages Collection.

The Mayors of various towns in the pottery districts of England have petitioned the Chancellor of the Exchequer that this beautiful and rare collection of specimens of the ceramic art may be purchased for the use of the nation, as they believe that such a museum would tend to improve the decorative manufactures of the country. A union of the art-trades has been formed in London to bring the matter before the House of Commons immediately on its re-assembling. The collection was formed by a French gentleman, M. Soulages, and it is now for sale by his representatives.

Sweet Cream for Chapped Hands.

A correspondent—C. P. S. Wardwell, of Lake Village, N. H.—informs us that he has found sweet cream the best remedy for chapped hands he ever tried, after trying a great number of specifics to effect this object.

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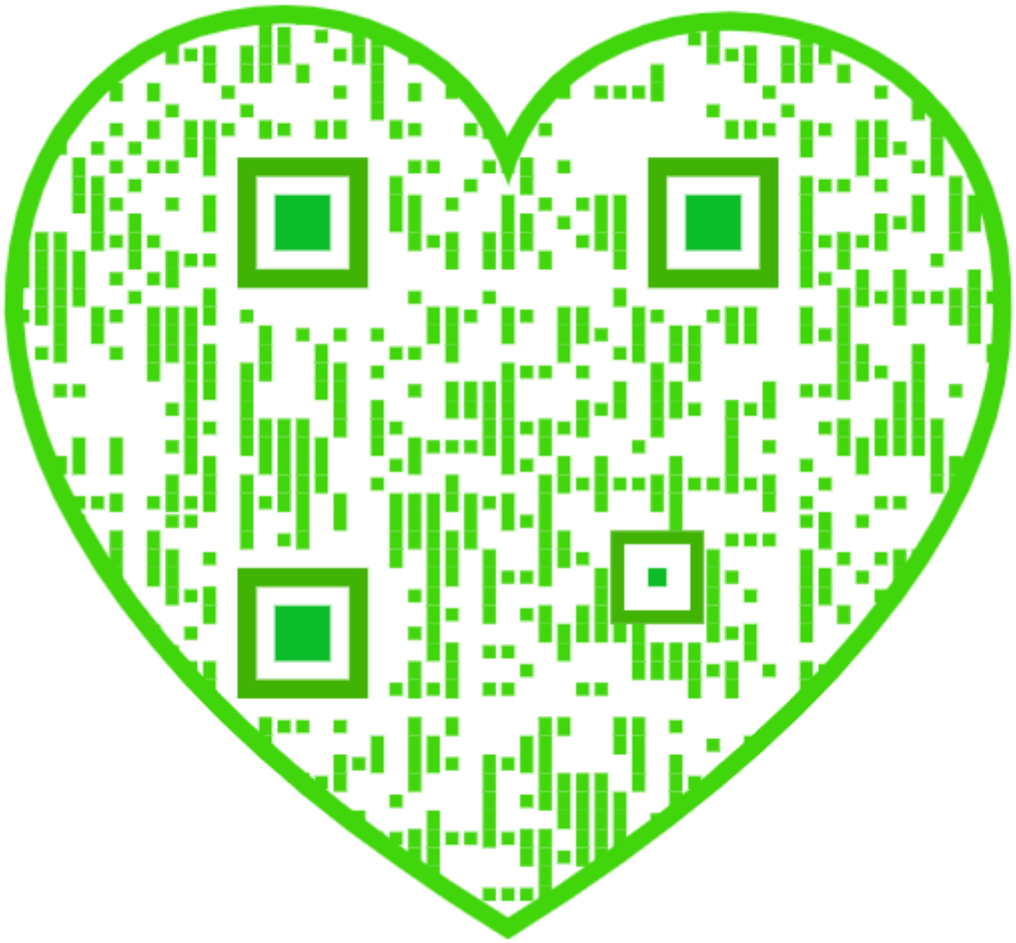

Issued from the United States Patent Office

FOR THE WEEK ENDING JANUARY 19, 1858.

[Reported officially for the Scientific American.]

CONSTRUCTION OF TELEGRAPHIC CABLES—John Absterdam, of Boston, Mass.: I claim as a new or improved manufacture, an electric telegraph cable (or one constructed in part of metallic wire) as made, so as to be elastic lengthwise, or with such corrugations or bends in the circuit wire or wires, and its or their external covering, or simply in the circuit wire or wires, or in the circuit or other wires, as will ensure elasticity of the cable in a longitudinal direction, as specified.

CHURN—Michael L. Bauder, of Elyria, Ohio: I am aware that shafts, armed with beaters, have been employed in circular churns, but this arrangement does not enable the beaters to control the masses of cream, and drive them through each other, as in my machine; and I also know that such beaters have been employed with a reciprocating motion of the shafts. These I do not claim.

But we claim the arrangement of the elongated vessel F, provided with shafts, D D, armed with beaters, in connection with the case, A, constructed and operated substantially as set forth.

HAND REAPERS—J. W. Baltzly and Wm. Hobson, of Pana, Ill.: We do not claim the sickle, L, nor the manner of operating or driving it.

Nor do we claim a rake working through a slotted platform.

But I claim the semi-circular bars, C, connected with the frame, A, and having the axis, a a, of the wheels, B B′, attached and provided with pins, f, in connection with the rod or bar, M, attached to the frame, A, and arranged relatively with the above-named parts, as described, so that the sickle may be adjusted at the required hight with facility, and a proper handle or device obtained, for the ready propulsion of the machine by hand.

[This reaper has a novel arrangement for raking the cut grain from the platform; the sickles are also placed so as to cut the grain at any desired hight, the whole being constructed for operation by hand.]

ARRANGEMENT OF VALVES AND PASSAGES IN THE CYLINDERS OF STEAM ENGINES—Edward D. Barrett, of Cincinnati, Ohio: I claim the arrangement of check valves, I I′, and passages, E E′, in relation to the passages, D D′, and the main valve, substantially as set forth.

BUTTONS—Jean Felix Bapterosses, of Paris, France. Patented in France, January 7th, 1857: I claim, as a new article of manufacture, the button composed of porcelain, enamel, or of any material susceptible of being cast, wherein the neck or shank is fixed, by means of fusible metal, melted into tapped or conical holes or recesses made during the process of casting of said button, by means of the mechanism described, or its equivalent, substantially as specified.

LOCK OF DOUBLE-BARRELED GUNS—Henry Barnes, of Wilson, N. C.: I claim the placing a projection upon the trigger-plate, a corresponding one on the trigger, and fly lever with a projection of a similar kind, and a concave groove, substantially arranged so as to form a permanent hinge, for the uses and purposes set forth in the specification.

SEED PLANTERS—Samuel Baker, of Mount Pulaski, Ill.: I do not claim, broadly, and irrespective of the arrangement shown, the reciprocating bar, W, provided with the recess, k, and working vertically through the seed box, X, for distributing the seed, for this is a well-known device, and is common to many seeding machines.

But I claim the reciprocating bar, W, provided with the recess, k, when operated by means of the working beam, F, link, a, rod, b, and crank, c, on the adjustable shaft, G, connected with the lever, L, substantially as shown, for the purposes specified.

[This machine is simple and efficient, and is under the perfect control of the driver.]

COVERING THE HEADS OF TRUNK NAILS—James P. Blake, of Waterbury, Conn.: I would here remark that I distinctly disclaim the invention of a rotating bed for carrying the dies, as this is seen and claimed in J. G. Davy's patent rivet machine, of July 3, 1849.

Nor do I claim any of the parts shown in Daniel Dodge's nail machine, patented June 22, 1852.

But I claim the sockets, e, provided with the arbors, f, in combination with the dies or plungers, F G, constructed and arranged so as to operate conjointly as and for the purpose set forth.

[A description of this invention will be found on another page.]

RAILROAD CHAIR—James Bishop, of Owego, N. Y.: I claim a railroad chair or joint-coupling composed of two parts, E F, furnished with jaws, c b, and projections d e, fitting to each other, and to the ends of the rails, A B, substantially in the manner and for the purpose set forth.

PLOWS—Samuel R. Borum and William McClean, of Norfolk, Va.: We do not claim the invention of double mold-boards, for we know they are old.

But to the best of our knowledge and belief, it is new to make the standard transversely of V-shaped form, gradually expanding from the upper to the lower part, the said peculiarly-shaped standard being combined with the horn or projection, b, of the landside, C′, in the manner set forth.

We claim the arrangement of the peculiarly-formed V-shaped standard, D, with the horn or projection, b, of the landside, C′, and its wings, B′, as shown and described.

[This plow has a peculiarly-arranged double mold-board and landside, by which the breaking of the share and the loosening of the mold-boards are obviated.]

SEED PLANTERS—John A. Brown, of Richmond, Ind.: I am aware that corn planters are in use, in which the seed-boxes are attached directly, either to the spokes or hubs of the wheels. My invention, however, is quite distinct from these, inasmuch as in mine the boxes are attached to the axle, from which one wheel may be loose, and free to move within the seed boxes, as shown.

But I claim the arrangement of seed boxes, B B′, upon axle, a, in combination with the distributing and discharging devices shown, said devices being operated by the arms, E E, as set forth.

CONSTRUCTION OF FURNITURE—A. D. Brown, of Glasgow, North Britain: I claim connecting together the several parts of chairs, and of other articles of furniture, by the employment of metallic differently-slotted dovetail pieces, when the said dovetail pieces are secured into recesses in the wood, or material of the furniture, by means of screws passing through the bottom of said slots, and the center, or thereabouts, of the parts, in combination with wedge dovetailed projections, secured also by means of screws, when said screws pass through the central line thereof, substantially in the manner as described.

ADJUSTING TWO CIRCULAR SAWS TO THE SAME PLANE—Edwin P. Cavett, of St. Louis, Mo.: I lay no claim to the "end play." But one of my improvements is for the government of the end play automatically.

Neither do I lay any claim to the springs, or their arrangement.

Neither do I claim the compound lever, D, as such.

But I claim the application of the compound lever, D, to the two saw arbors, substantially in the manner described, whereby the lateral motion of one saw will automatically govern the lateral motion of the other, as set forth.

I also claim the combination of the saw arbor with the hollow mandrel, and the air funnel, G, whereby a current of air is made to pass through the arbor, against the sides of the saw, substantially in the manner set forth.

SEWING MACHINES—D. W. Clark, of Bridgeport, Conn.: I claim placing and holding the loop in position to receive the needle by means of a slot, x, which runs or extends at right angles to the direction of the feed, and is notched at its center, for the passage of the needle, substantially as described.

CROZING PLANE—S. G. Crane, of Rochester, N. Y.: I claim the construction and arrangement of the adjustable plates, P, and the arrangement of the knife, V, as and for the purposes specified.

CHAIN-CABLE STOPPERS—John E. Crane, of Lowell, Mass.: I do not claim, separately, the pawl, E′, nor the grooved bed plate, B, for they have been previously used.

But I claim the combination of the pawl, E′, eccentric segment ledges or projections, d d, on the inner sides of the cheek plates, A A, and the grooved bed plate, B, arranged substantially as shown, for the purpose specified.

APPLICATION OF ELECTRO-MAGNETIC BATTERIES TO CAR BRAKES—S. D. Carpenter, of Madison, Wis.: I do not claim, broadly, and irrespective of the arrangement shown, the application of electro-magnets to car brakes for operating the same.

I claim the employment or use of electro-magnets, one or more, attached directly to the bars, C, and springs, G G, for the purpose set forth.

I further claim the particular manner of attaching the magnets to the shoe bars, viz., by means of the links, b, and screw bolts, c, substantially as shown, whereby the magnets may be adjusted, for the purpose of graduating the pressure of the shoes upon the wheels when the circuit is closed.

[Full particulars of this invention will be found in another column.]

ROPE MACHINES—William Coutie, of Troy, N. Y.: I claim arranging the strand-flyers apart from the strand spindles, with their axes in the same planes as the axis of the laying spindle, but intersecting the latter axis at right angles, and with their journals in bearings in the sides of a frame, constituting part of the laying spindle, and gearing said flyers with the strand spindles, the planetary arrangement of which is retained, by miter gears or their equivalents, by which the said flyers are caused to rotate with the laying spindles, so as to cause no twist but what is produced by the planetary strand spindles, in the same manner as in the ordinary "sun and planet" machine, substantially as described.

[For description of this invention, refer to another page.]

VARIABLE CUT-OFF FOR STEAM ENGINES—Addison Crosby, of Fredonia, N. Y.: I am aware that hollow valves have been before employed upon the back of a sliding valve, and therefore I do not claim, broadly, the employment of hollow valves, except as described.

I claim the arrangement of the two hollow plug cut-off valves in a double chambered valve box, D D, which has a sliding movement on the back of the main valve, for the purpose of opening and closing the said valves to admit and cut off the steam, by means of toe pieces, i i, or their equivalents attached to the latter, coming in contact with suitable pieces within the steam chest, substantially as described.

[This is described on another page.]

SEWING MACHINES—Martial Dimock and Nathan Rixford, of Mansfield Center, Conn.: We do not claim the looping apparatus patented by W. Lage, June 30, 1857.

But we claim the looper, s r, in combination with the sliding plate, K, and the loop guide, f o, when arranged in the manner substantially as set forth, and for the purpose specified.

SHINGLE MACHINE—George Darby and James E. Young, of Augusta, Maine: We claim first, Effecting a continuous reciprocation of the shingle carriage, by means of a pinion wheel, H, and the toothed bar, F, which has only a single line of teeth, c, c, and is arranged loosely in grooves on the under side of the carriage, so as to be compelled to move with it longitudinally, and yet to be capable of moving laterally to the right and left independently of it, and at the completion of each stroke of the carriage, of alternately assuming positions which are opposed to one another, and which are oblique or diagonal to the path in which the carriage is moving, and which will allow the pinion to take hold of the opposite side of the teeth, substantially as and for the purposes set forth.

Second, The head block, N, when furnished with a yoke, O, which has ears, h h, and a set screw, g, in combination with the grooved shingle carriage, B, substantially as and for the purposes set forth.

[A full description of this appears on page 163.]

HARVESTERS—Ezra Emmert, of Franklin Grove, Ill.: I claim the peculiarly constructed apron, F, and retaining hooks, J J, in combination with the binding hooks, L, and platform, M, the whole being constructed and arranged for joint operation in the manner and for the purposes set forth.

[This harvester has an arrangement on the platform, by means of which the wheat or grain and stalks are collected, until there are enough to form a sheaf, and they are then discharged in bundles, for binding.]

FORMING BRIMS OF FELT HATS—William A. Fenn, of Brookfield, Conn.: I do not claim, in the abstract, the employment or use of conical pressure rollers, for they are used in various ways for similar or analogous purposes.

But I claim the employment or use of the two pairs of rollers, O F N G, arranged as shown, to wit, the upper rollers, O N, of each pair being fitted or placed in an adjustable frame, K, and the two pairs of rollers rotated with varying speed, whereby the hat brim is stretched, and at the same time subjected to the necessary pressure, as described.

I further claim giving the rollers, G, a certain degree of elasticity, or allowing it to yield or give vertically, to a certain extent, by any proper arrangement, when said roller, G, thus arranged, is used in combination with the other described parts, whereby the pressure of the feed rollers, N G, is rendered constant, and at the same time the pressure of the rollers, O F, allowed to be regulated as desired, for the purpose of forming an even and perfect brim, as set forth.

[For a further description of this, see another column.]

PORTABLE RAILROAD SWITCH—John C. Mather, of New York City: I claim a portable switch, constructed in the manner substantially as and for the purpose set forth.

I also claim the arm, d, as arranged, for the purposes set forth.

ICE CREAM FREEZERS—H. B. Masser, of Sunbury, Pa.: I claim the beveled pivoted stop, E, arranged on the top of the ice vessel, and the beveled stop, G, on the bottom of the cream cylinder, for operation in combination with the off-set, F, on the upper edge of the cream cylinder, and the off-set, G, on the lower edge of the agitator and scraper, substantially as and for the purposes set forth.

TABLE RACK FOR STEAMERS, SHIPS, &C.—John Franz, of Boston, Mass.: I do not claim a fixed rack, for that has been used before in stewards' panties, for holding ships' crockery and table furniture.

Neither do I claim a perforated metallic plate, used to cover a hot water bath, nor a perforated false bottom for butlers' trays.

But I claim the adjustable, removable, perforated wooden rack for vessels' tables, before described, constructed and used substantially in the manner and for the purpose specified.

GRAIN SEPARATORS—Ashman Hall, of Dansville, N. Y.: I do not claim any of the parts when separately considered.

Nor do I claim, broadly, the employment of two shoes in separating machines.

But I claim the relative arrangement of the two shoes D G, in respect to each other, and to the fan, C, the upper shoe, D, swinging laterally, and communicating a horizontal motion to the lower shoe, G, by means of the lever, H, and all the parts being arranged as set forth, for the purposes specified.

[This invention consists in the employment of one or two shoes, provided with screws, and arranged relatively with each other and a fan, so that the grain is conducted directly to the receptacle prepared to receive it, and is perfectly separated from all foreign substances.]

THRESHING MACHINES—P. W. Mills, of Conneaut, Ohio: I claim the ribbed cylinder, D, having one end of greater diameter than the other, with the corresponding concave, E, when employed in connection with the winnower, provided with the screen, N, for the purpose of threshing and winnowing grain, and delivering the straw at the tail end of the machine, in regular order for binding, as set forth.

SEWING MACHINES—Daniel Harris, of Boston, Mass.: I claim the specific device described for applying tension to the thread during its passage from the bobbin or spool to the needle, that is, causing it to run through the eye of the spindle and between two disks of parchment, when said disks are placed upon the spindle between two india rubber tubes or cylinders, which are liable to be compressed in the direction of the axis of the spindle to any degree of intensity required, substantially as set forth.

CORN HUSKER—J. D. Heaton and W. A. Clark, of Dixon, Ill.: We claim the hammers, H and N, the bolsters, R D, in combination with knives, J J and E K, and double prong fork, P2, when the whole is constructed and arranged for joint operation in the manner and for the purposes set forth.

FILE—Joseph W. Houston, of West Meriden, Conn.: I do not claim making a file of separate plate of steel, held together on a rod or bar by means of a screw, or its equivalent.

Nor do I claim making the cutter plates of the file either round or with an angular periphery.

But I claim an improved file, or an improvement on a file so made, my improvement consisting in making each of the plates with a concavo-convex bend or angle, as described, and so that one plate shall extend into another, and be supported by it, and the whole be arranged to better advantage for being sharpened than is the case when the plates are plane or unbent pieces of metal.

SEEDING MACHINES—John Huston, of Ottawa, Ill.: I do not claim, broadly, and irrespective of the arrangement shown, the employment or use of two slides for distributing seeds.

But I claim the arrangement of the shaft, G, levers, J g H, spring, I′, bar, D, and slide, I, substantially as and for the purposes shown, whereby, when lever, J, is moved forward, the lever, g, operates the bar, D, lever, H, operates slide, I, and spring, I′, acts to restore or throw the said parts to their first position.

[This is an improvement in the distributing device, whereby the seed is equally measured at each discharge, and the tube is prevented from becoming clogged; this is effected by the use of vertical and horizontal slides.]

SAWING MACHINE—John Mays, of Yazoo City, Miss.: I claim the arrangement of the angular frame, C, diagonally to the vertical plane, so that when the saw swings horizontally it shall serve to cut the logs into blocks or firewood, and when it swings vertically it shall serve to cut the logs into boards or planks, without any other alteration of the mechanism of mill but a change of the saw and frame from a horizontal to a vertical position, all substantially as shown and described.

[Full particulars of this invention will be found on another page.]

PRESSES FOR PACKING THE PULP OF LINSEED, OR OTHER SEEDS, BEFORE EXTRACTING THE OIL—Charles Moore, of Trenton, N. Y.: I claim, in combination with the described mold and hinged hopper, a follower fitted to work through the said hopper into the mold and operated substantially as described, for the purposes set forth.

GAS TUBE JOINT—Charles Monson, of New Haven, Conn.: I claim the arrangement of the semi-circular tubes, g h, in connection with the ring, C, and central chamber, i, constructed and operated substantially as set forth.

CRANBERRY SEPARATORS—David Perham, of Tyngsborough, Mass.: I claim the inclined plane, J, and bounder, L and L2, constructed and relatively arranged and operated as described, for bounding cranberries, to separate the good from the bad, essentially as fully set forth.

I also claim the relative arrangement of the hopper B, with its adjustable gate, H, and rack, C, in such manner as to properly deliver the cranberries to the apron, D, and allow dirt and foreign matter to fall from them through this rack during their delivery, essentially in the manner and for the purposes fully set forth.

I also claim the arrangement of the guides, I and P5, constructed with and forming part of the feed apron, D, as described, so that the cranberries will not be allowed to fall on each other when delivered to the bounder, essentially in the manner and for the purposes fully set forth.

I also claim the movable and adjustable flexible strick, G, so placed above, and relatively arranged with, the apron, D, as to govern the quantity of cranberries on the apron itself, which may be passing over or upon it, essentially in the manner and for the purposes fully set forth.

I also claim the cushion, T, relatively arranged with the bounder, L and L2, as to receive momentarily, and prevent bruising the imperfect cranberries, essentially in the manner and for the purposes fully set forth.

I also claim the flap, F2, so arranged with the bounder, L and L2, as to receive the force of the good or perfect cranberries, and prevent bruising them, as they are separated by, and bounded from, the bounder, essentially in the manner and for the purposes fully set forth.

I also claim the double adjustable divider, Y and Z, so arranged relatively with the bounder, V and M2, as to sub-divide the poorer quality of cranberries, essentially in the manner and for the purposes fully set forth.

DOUBLE-SEAMING MACHINE—Luther E. Porter, of Lake Mills, Wis.: I do not claim, broadly, the employment or use of adjustable rollers for seaming or closing the joints of sheet metal ware, for rollers variously arranged are in common use for such purpose.

But I claim the frames, I K O, provided respectively with the rollers, J N Q, in connection with the segment C, the whole being arranged as shown, so that the rollers may be readily adjusted, and the manipulation of the machine generally rendered comparatively easy.

[A description of this invention is on page 163.]

SEWING MACHINES—J. and A. W. Sangster, of Buffalo, N. Y.: We claim the looper, A′, in combination with the plate, D, and cross piece, Z, substantially as described, for the purpose of catching the loop, and causing it to be formed round the looper, A′, and held open in the aperture, v, for the reception of the needle.

FEEDING MILLSTONES—Winser Smith, of Princeton, Iowa: I do not claim the employment of a tube for conducting the grain through the eye of the rotating stone.

But I claim giving a jarring or shaking motion to the tube, D, as described, for the purpose of preventing the clogging of the grain.

[For further information concerning this invention, see another page.]

COMPOUND PENDULUM—Charles W. Rice, of Worcester, Mass., and John E. Harrington, of Millbury, Mass.: We claim first, The adjustable connection, B, or its equivalent.

Second, The strap, D, by altering the angles of which we are enabled to increase or decrease the effect of the expansion and contraction of the connection, B, in raising or lowering the weight, R, of the pendulum, all substantially as described.

CUT-OFFS FOR STEAM ENGINES—Augustin P. Samuel, of New York City: I claim the adjustable bars, q t, making, with the helical slot in the rock shaft plate, y, an uniform curve, arranged substantially as described, within, or in connection with, such helical curve or slot in such rock shaft, y, for varying the cut-off, as above set forth.

RAILROAD CAR BRAKES—Thomas W. Smith, of Alexandria, Va.: I do not claim the use of a bumper, or other equivalent sliding-piece, for regulating, by its motion, the tension of a brake chain, except under the construction and combination which I here set forth as of my invention.

I claim, first, The employment of the rods, A A′, at each end of the car, united by flexible connections passing round compensating pulleys, substantially as set forth, said rod transmitting the braking power by mutual contact of their outer ends or heads, as set forth.

Second, I claim the compensating apparatus, substantially as set forth, the same consisting of the pulley levers, E E′, with one end attached to the car, and the other to the bumpers, and the pulleys, C C, hung at the centers of these levers, for tightening or slacking the chains, B B′, so as to vary the distances of the ends of the rods, A A′, directly with the variations of the bumpers, or the distance between the cars.

LAMP OR CANDLESTICK AND MATCH-BOX COMBINED—Thomas Shanks, of Baltimore, Md.: I am well aware that match-boxes, or safes, and tinder receptacles, have been applied, connected to, and arranged with, illuminating apparatus; and also that candlesticks have been formed with depressed receptacles, consequently such attachments and formations I do not claim.

But I claim the construction of, and providing lamps or candlesticks with, a hollow base or pedestal part, a a a, said hollow base being combined and provided with a sliding self-closing drawer-like arrangement or receptacle, b b b b, having compartments, c c c d d, enclosing chamber, e e e, constructed, arranged and operated by the springs, k k k k, and catch rod, h h, substantially for the purposes set forth, and as described.

CONNECTING THE PANELS OF FIELD FENCES—Wm. D. Sheldon, of Huron, N. Y.: I wish it to be understood that I distinctly disclaim the use of notched shoulders on the rails in connection with coupling pins or their equivalents, nor do I claim the employment of the pickets in other combinations to assist in locking the fence.

But I claim the combination of the end pickets of the sections of the fence with coupling pins or spikes, substantially as described, so that the fence may be put together or taken apart by simply hooking on or lifting off the alternate lengths or sections, for the purposes specified.

CORN SHELLER—Jeremiah P. Smith, of Hummelstown, Pa.: I claim the ribs, E E, arranged and operating in combination with the concave, I, substantially in the manner and for the purpose specified.

SPINNING MACHINE—Wm. W. Spafford, of Petersborough, N. H.: I claim the construction of spinning machines, having series of bush-gear wheels, n o, n o, n o, and twisting thimbles, P P P Q, combined and working on the circumference of a main central driving gear wheel, I I I I, said central driving gear wheel combined with the annular plates, J J J K K K, and the adjustable graduating segmental plates, t t t t, the whole arranged and operated substantially as described.

RATCHET MOVEMENT FOR SCREW DRIVERS—G. H. Talbot, of Boston, Mass.: I claim the combination with sliding rag wheels, c c′, of a sliding piece, i, having claws, h h, substantially as and for the purposes described.

[This is a combination of two pairs of rag wheels or flat circular ratchets, with reversing gear to engage either pair and disengage the other, so that a rotary motion can be given to the tool by turning the handle back and forth in opposite directions.]

PLOWS—Thos. Thompson, of Thompsonville, N. C.: I make no claim to the curved beam, nor do I claim an adjustment of handles for regulating the depth of plowing.

But I claim the curved beam, B, and land-side, L, having the depending ear, e, and upright standard, f, secured to the beam as described in combination with the opposite curved adjustable handles, H H, as constituting an improved construction of plow.

CARPET FASTENER—C. A. Wakefield, of Dalton, Mass.: I claim a carpet fastener composed of metal plates bent so as to form parallel sides or plates, a b, provided with teeth, c, and each perforated with a hole, d, the plates being fitted and secured on the edge of carpet, and used in connection with the tacks, e, or their equivalents driven in the floor, substantially as shown for the purpose set forth.

[The claim explains the invention, which is designed to save the great wear and tear of carpets resulting from taking them up and putting them down when the tacks are driven through them.]

RAILROAD TRACKS—C. A. Wakefield, of New Haven, Conn.: I do not claim, broadly, the employment of splice-pieces for the purpose of uniting the ends of rails, nor do I claim the invention of chairs, one portion whereof is so fastened as to form a false rail fitting into corresponding notches, cut out of the ends of the true rails, as in Hawley & Forbush's rejected device, 1854.

But I claim forming cavities of unequal length in the opposite sides of the heads of the two lengths of rail at the joint, and fitting to the sides of the neck of the rail two plates with upward projections to fill the said cavities, and form a continuation of the heads of the rail, substantially as and for the purpose set forth.

[This invention provides a joint so made by having pieces of unequal size cut out from opposite sides of the heads of the rail, so that when pieces of iron are bolted in, there is in no part a break of more than one-third the diameter of the rail, and consequently the wheel always has a bearing on two-thirds of any part of the joint.]

CONSTRUCTION OF MARQUETRY FLOORS—B. H. Sheddaker (assignor to Edwin Bender), of Philadelphia, Pa.: I do not claim the application of marquetry to floors, nor the securing of one piece of wood in and across the one side of another by means of a dove-tail, half dowel, or otherwise.

But I claim constructing marquetry floors, substantially in the manner and for the purpose set forth and described, namely, I claim constructing marquetry floors by first inlaying or inserting the required differently colored pieces of wood or other material, across in the upper sides of the proper flooring boards (whether

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these are of like or different colors) prepared with tongues and grooves in the usual manner required for common flooring, so that the said boards so prepared, as set forth, may afterwards be laid down and secured directly upon the joists in the usual manner, and so produce a marquetry floor of any surface, pattern, or design, which may be adapted to such mode of construction without the use of the sub-floor required by other modes.

SAWING MACHINES—Hiram Wells, of Florence, Mass.: I am aware that various devices have been employed for feeding the carriage to the saw, and gigging back the same by means of friction, and friction and gearing combined, and I therefore do not claim, broadly, such device, irrespective of the arrangement and particular means employed for the purpose as shown.

I claim the arrangement of the rack, V, pinion, S, rack-bar, P, lever, Q, roller, I, slot, e, pin, D, and roller D′, as set forth, whereby the shaft, K, will be rotated in either direction at pleasure according as the lever, X, is moved.

[We have noticed this invention in another portion of this journal.]

METHOD OF BUTTING AND POINTING THE BOLT TO BE SAWED INTO SHINGLES—Moses D. and Alpheus Wells, of Morgantown, Va.: We make no claim to regulating the position of the bolt by an oscillating table.

But we claim the vertical knife-edge slides, B B′, and horizontal double inclined slide, D, in combination with each other and the carriage and saw, substantially as and for the purposes set forth.

SCROLL SAWING MACHINE—U. B. Vidal, of Philadelphia: I am aware that a cam similar to the one, F, described has been previously used for operating reciprocating saws, but I am not aware that said cam has ever been used in connection with springs applied to the saw, so as to strain the saw, and at the same time prevent re-action or "back lash," which would otherwise attend the operation of the same by means of the cam.

But I claim the arrangement of the slotted slide, H, with a cam, F, embraced by the friction rollers, g, and operated in connection with the springs, f f, c c, all as set forth.

[This is described on another page.]

COMBINED HORSE COLLAR AND HAMES—G. W. N. Yost, of Cincinnati, Ohio: I claim the adjusting breast yoke, E, in combination with the hame bows, A A, for the purpose of making the hames press directly backward and upon the fleshy portions of the shoulders in order to enable the horse to draw with greater ease, and also for more accurately fitting different horses, and thus preventing the chafing, galling, and stiffening of the shoulders, substantially as set forth.

WINDOW BLIND FIXTURES—A. G. Batchelder (assignor to H. E. Pearson and A. M. Butterfield), of Lowell, Mass.: I claim the application of a stand clasping the rail, in combination with the spring and guide rod, in the manner and for the purpose set forth.

SEWING MACHINES—A. H. Boyd (assignor to O. D. Boyd), of Saco, Me.: I claim the combination of the lever, M, with the shoe, and spring, 4, for giving the shoe a vertical reciprocating movement.

Also, in combination therewith, the slide, T, for giving the horizontal reciprocating movement to the shoe, (when the shoe is to be operated in the manner described), arranged as set forth.

RESTORING WASTE VULCANIZED RUBBER—H. L. Hall, of Beverly, Mass., assignor to the Beverly Rubber Company: I claim the process above described, namely, boiling waste vulcanized rubber in water, after it has been reduced to a finely divided state by grinding, for the purpose of utilizing the same, by restoring it to a plastic state, fit to be again used in the manufacture of india rubber fabrics, as set forth.

PUMP BUCKET—W. F. Horton, of Lockport, N. Y., assignor to W. K. Marvin, of New York City: I do not claim any single member of this bucket as new, either shaft, flanges, washer or packing.

But I claim the peculiar arrangement of the flange, D and B, with the corrugated washer, d, and packing C, when all are operated and secured in the manner described, and for the purpose set forth.

COAL SCREENS—Geo. E. Hoyt and F. Neshwitz, (assignors to G. E. Hoyt,) of Brooklyn, N. Y.: We do not claim any form of rotating coal screen.

Neither do we claim any arrangement which requires the dust to pass through a succession of screens before being finally separated from the coal.

But we claim preventing the dust and dirt which have been once separated from the coal from again mingling with it by means of the arrangement before described of the inclined screens, C D E F, in combination with the dust sieves, b, the whole constructed, arranged and operating substantially in the manner set forth, and applied to the purposes specified.

REGISTERING THE SPEED BACK OR FORWARD AND DISTANCES PASSED OVER BY RAILROAD TRAINS BY MEANS OF ELECRO-GALVANIC BATTERIES—Lewis Troost (assignor to John M. Battle) of Mobile, Ala. Patented in England, June 15, 1857—in France, June 18, 1857: I wish it to be particularly understood that I do not confine myself to the use of any of the particular mechanical devices described, nor to the use of any particular marks or characters in the several registrations, as such may be varied and modified without departing from the principle of my invention.

But I claim, first, The method described of recording the performance of a railway train on its journey, by the combination of a registration of time, and one or more registrations of distance, such registrations being made in lines parallel with or contiguous to each other, to show by comparison with each other the speed, movements, and stoppages of the train, substantially as specified.

Second, The indication of the backward movements of the train by a registration of a different character to that of the forward movements, but in the same relation to the registration of time, so as to show the time occupied and the distance passed over in backing and to enable such distance to be deducted from the distance run forward, and the distance run from the starting point to be correctly ascertained.

[A notice of this will be found on another page.]

SPRING PRESSURE GAGES—M. Y. Young, (assignor to himself, H. F. Litchfield and J. G. Hamblin,) of East Boston, Mass.: I claim supporting the piston entirely by an elliptic spring, sustained in position by a cross-bar or partition or the equivalent thereof applied in the case, and making the piston to rest in other respects only against the elastic diaphragm, and have no connection with the sides of the space within which such piston may move, the whole being productive of an advantage, as above stated.

RE-ISSUES.

PRINTING PRESSES—Stephen P. Ruggles, of Boston, Mass. Patented Jan. 1, 1851—Re-issued Jan. 19, 1858. I claim the gage bar for cards above referred to, in combination with the vibrating platen, and stop-finger and crank which operates the same, in the manner and for the purpose described.

I also claim the use of a segment of a cylinder in combination with the stationary form bed, so that the rotary inking apparatus may move over the form, and then after taking ink from the fountain, distribute it on said cylinder as above set forth. I also claim, in combination with the stationary form bed, the revolving cheek plates, I I, for carrying the rolls over the form, as set forth and described.

I also claim the movable bearers on the side of the form bed, arranged and operated substantially as above described, so as to be moved outwards when the inking rollers are passing over the form and drawn inwards when the sheet or tympan is moved up to said form.

I also claim regulating the delivery of the ink, by combining with the delivery roller, a grooved ratchet wheel and weighted pawl band operating with the lever stud, cam roller, and stop lever, substantially as specified.

I also claim supporting the journals of one of the inking rollers on sliding bearers, so that it may be moved up against the delivering roll by means of studs on said bearers and cams, operating the same as set forth.

VAULT COVERS—George R. Jackson, of New York City. Patented April 21, 1857—Re-issued Jan. 19, 1858: I claim combining glasses of an inverted pyramid, polygonal, or conical form with the sash or metallic portion of an illuminating vault cover or its equivalent, for the purpose of producing a wide spread and perfect diffusion of the rays of light which may pass through said cover into the apartment beneath, substantially as set forth.

ECCENTRIC EXPLOSIVE SHELLS—Wm. W. Hubbell, of Philadelphia, Pa. Patented Jan. 22, 1856—Re-issued Jan. 19, 1858: I claim the combination of the head or segment of the solid sphere with flat base uniformly aronnd the fuze hole, with the segment of the hollow part forming a spherical shell with flat-based head and externally smooth, as described.

AIR TIGHT STOVE—Zephaniah Bosworth, of Harmer, Ohio, assignor to J. M. McKinlay, of Dubuque, Iowa. Patented April 6, 1842—Extended for the term of seven years from April 6, 1856—Re-issued Jan. 19, 1858: I claim a fire-pot, a combustion chamber, and descending flues leading from the bottom thereof and between the fire-pot and outer casing to a chimney, all arranged in the interior of a box, enclosure, or casing of suitable materials with proper provision for admission of air or fuel, all substantially such as are described, in combination with a properly governed aperture for admitting air into the chimney without passing through the fire-substantially in the manner set forth, the whole constituting a stove substantially such as is specified, and this combination is claimed whether the oven be used or not. The sliding door, L, the drop door, C, and the other parts of this stove do not differ from such as has been previously known and used; no claim is therefore made to them, or in fact any part of the stove taken individually, but the claims are limited to the combination, substantially as set forth and made known.

ADDITIONAL IMPROVEMENT.

CIDER MILLS—Benjamin Mackerley, of New Petersburg, Ohio. Patent dated Nov. 4, 1858—Additional improvement, Jan. 19, 1858: I claim preventing the apples from passing in an uncrushed state from the hopper into the grinding chamber by means of the joint action of the comb, S, and the division plate, t, arranged in relation to the stationary teeth, f, in the concave, A, and the double series of rotating teeth, d and e, of the cylinder, g, substantially as set forth.

I also claim extending the length of the grinding chamber beyond the series of teeth, f, in said chamber and then combining a clearing cam, r, with the correspondingly elongated end of the cylinder, g, substantially as set forth.

EXTENSION.

BOOT CRIMPS—Josiah Copeland, of Weymouth, Mass., assignor to Jonah M. Read, of Boston, Mass., assignor to Josiah Copeland, aforesaid. Patented January 20, 1844—Re-issued August 11—Extended January 11, 1858: I do not claim strictly the combination with a pyramidal frustrum or block, A, of another piece of metal forced down upon or over it, by a screw or other contrivance, separate from the main straining screw, and for the purpose of confining the corners or edges of the leather between the said pieces of metal. Nor do I claim the forcing of the two jaws or pieces of metal together by a screw or other contrivance separate from the main straining screw.

But that which I claim consists in the manner described of arranging the blocks, A, and clasps, C, so that the turning up of the straining screw shall at the same time perform the double operation of confining the ends of the leather between the block and clasp and of stretching the leather over the boot form, the whole being substantially as above specified.

DESIGNS.

TYPES—George Bruce, of New York City.

STOVES—A. C. Barstow, of Providence, R. I.

Table of Patents Issued to Each State in the Year 1856.

CLASSES.	Me.	N. H.	Vt.	Mass.	Conn.	R. I.	N. Y.	N. J.	Penn.	Del.	Md.	D. C.	Va.	N. C.	S. C.	Ga.	Fla.	Ala.	Miss.	La.	Ky.	Tenn.	Ohio	Ind.	Ill.	Mich.	Wis.	Iowa	Minn.	Mo.	Texas	Ark.	Cal.	Foreign	Totals.
I. Agriculture.	3	7	6	17	5	1	68	2	34	1	6	1	13	5	0	6	0	1	8	0	5	0	33	8	25	5	11	0	1	4	2	0	1	0	288
II. Metallurgy and Manufacture of Metals.	2	3	3	26	28	7	74	14	30	0	2	0	1	0	0	0	0	0	0	0	0	0	10	2	2	1	2	0	0	0	5	0	4	0	141
III. Manufacture of Fibrous and Textil Substances.	2	2	0	38	12	4	43	7	7	1	2	0	2	0	0	2	0	1	1	0	2	0	3	2	1	1	0	0	0	0	3	1	0	0	115
IV. Chemical Processes, &c.	0	0	0	22	8	1	33	8	18	0	4	0	2	0	0	1	0	0	0	0	1	0	1	1	3	0	0	0	0	0	1	0	0	0	142
V. Calorifics, Lamps, Stoves, &c.	0	0	1	33	9	2	42	5	22	1	3	0	3	0	0	0	0	0	0	0	0	0	12	4	3	2	0	0	0	0	2	0	0	0	100
VI. Steam and Gas Engines,	1	1	0	17	6	1	35	2	17	0	1	0	0	0	0	0	0	0	0	0	0	0	5	2	1	0	0	0	0	0	0	0	0	0	65
VII Navigation and Maritime Implements,	1	0	0	8	6	1	17	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	35
VIII. Mathematical, Philosophical and Optical Inst's.	0	1	0	7	4	1	10	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	12	4	1	0	0	0	0	0	0	0	0	0	115
IX. Civil Engineering and Architecture,	1	1	0	6	2	1	37	3	17	2	2	0	2	0	0	0	0	0	0	0	0	0	11	2	1	0	0	0	0	0	0	0	0	0	123
X. Land Conveyance,	0	5	3	22	8	1	33	3	14	0	4	0	3	0	0	1	0	0	0	0	1	0	4	2	1	0	0	0	0	0	0	0	0	0	99
XI. Hydraulics and Pneumatics,	1	6	0	17	6	1	32	3	12	0	3	0	3	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	84
XII. Lever, Screw, and other Mechanical Powers,	1	2	2	16	2	1	6	4	4	0	1	0	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	39
XIII. Grinding Mills and Mill Gearing,	0	1	2	6	1	1	8	3	4	0	1	0	0	0	0	0	0	0	0	0	0	0	7	3	1	0	0	0	0	0	0	0	0	0	34
XIV. Lumber and Machines for Preparing,	10	5	5	35	5	1	47	3	18	1	0	0	5	0	0	3	0	0	0	0	0	0	7	6	3	1	1	0	0	0	0	0	0	0	79
XV. Stone and Clay Manufactures,	0	4	0	2	0	0	16	0	13	0	0	0	3	0	0	0	0	0	0	0	0	0	13	2	1	0	0	0	0	0	0	0	0	0	63
XVI. Leather, &c.	2	1	0	22	7	0	36	5	19	1	0	0	4	0	0	1	0	0	0	0	0	0	9	2	2	0	0	0	0	0	0	0	0	0	136
XVII. Household Furniture, &c.	2	1	4	22	12	2	39	5	20	1	2	0	4	0	0	1	0	0	0	0	1	0	7	3	1	0	0	0	0	0	0	0	0	0	121
XVIII. Arts—Polite, Fine, and Ornamental,	1	3	0	20	10	2	36	5	20	1	2	0	2	0	0	1	0	0	0	0	0	0	3	1	1	0	0	0	0	0	0	0	0	0	78
XIX. Fire Arms, &c.	0	1	0	10	3	2	17	3	10	0	1	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	25
XX. Surgical and Medical Instruments,	0	1	2	8	2	0	6	3	3	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	15
XXI. Wearing Apparel, &c.	0	0	1	2	1	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5
XXII. Miscellaneous,	2	1	2	8	7	2	15	6	10	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	58
Totals.	29	49	39	354	142	25	629	75	276	10	42	41	48	7	9	15	1	11	10	25	20	14	146	50	82	24	30	8	1	33	5	1	11	30	2292

REMARKS.—There seems to have been no curious inventions for the year 1856. The number of inventions, however, in particular classes, and of articles in some classes, is somewhat remarkable—for instance, in class I, nearly one-third were for Harvesters, being eighty-seven, and Planters being thirty-seven. There was fifty-three inventions in Fire-arms. The offer made two or three years ago, by a firm in Vermont, of $10,000 for a Sawing Machine for Marble, set inventors to work, and was followed by the issue of twenty-six patents for such machines. It would be useful and interesting to inventors especially to know if any of these machines came up to the demands of the gentlemen, and whether the money was paid, as promised.

The Reports for 1856 seem to be carelessly compiled. By the tabular statement (page 2), we have given as the number of patents..... 2,502

By List of Patentees: Patents	2,304	
Re-issues	83	
Designs	107	
Additional Improvements	27	
		2,521
By List of Patents	2,292	
Additional Improvements	27	
Re-issues	83	
Designs	107	
		2,509
By Index to Vol. III., from 14,008 to 16,323, inclusive	2,316	
Additional Improvements	27	
		2,343

It will be seen, from the above, that out of returns from four different sources, no two agree. Again, in the alphabetical list of patentees, there are several errors. On page 71, the name of James A. Cutting is omitted for a re-issue, dated Aug. 12, 1856. On page 100, the re-issue to B. J. La Mothe, is stated to be in Class X., instead of a re-issue. Page 106, an additional improvement granted to John F. Mascher is placed in Class XVIII. Page 107, patent to W. H. McNary (No. 16,285) is placed as a re-issue, instead of in Class III. Page 125, re-issue to T. J. W. Robertson, is placed in Class III. Page 139, re-issue to A. Swingle, is placed in Class III. These errors have been discovered in forming the above table. It may be said they are slight, and errors must be expected, but the utility of the tables and classification is destroyed, unless they are correctly made up. This must be evident to every one. T. G. S.

Tin versus Gold for Teeth.

MESSRS. EDITORS—In 1841, the second molar tooth in my "working" side of the under jaw became decayed in the center of the crown and forward, so much so that it was very sensitive. Not being where a dentist was accessible, I undertook the job of filling it. I cleaned the cavities and enlarged them slightly sidewise, and filled them compactly with heavy tin-foil, the only thing I could get; thinking that as soon as practicable I would have the thing more artistically done. It is now seventeen years since I did so, yet the tooth has been used constantly, is emphatically a "working" tooth, and is as sound and strong, apparently, as the day it was filled; it has not (owing, I suppose, to the non-conducting properties of the tin) shown the slightest sensitiveness. The metal seems as durable as gold, and if so, is far preferable on several accounts. I shall never have a tooth filled with anything else, if I should need such work done again. R. H. A.

Baltimore, Md., January, 1858.

Steam Ice Boat.

The Janesville (Wis.) *Standard* describes a steam ice-boat, projected by J. Ward, of that place. It is to be a small steamer, minus the wheels, and be placed on runners. The method proposed to propel it, in the absence of wheels, is thus described:—

"There are to be two belts of india rubber passing fore and aft under the deck, over pulleys, driven by the engine; and to the belts, which run parallel to, and near each other, there are connected dogs or poles, inclining upward from the ice to the belts at an angle towards the bow, and while one is passing from front to rear, the other is dragging to the front, and so act alternately, making tracks once in forty feet, or more than the length of the belts."

This method of propulsion appears to be an endless belt grappler.—EDS.

Torsion.

This term is applied to the twisting or wrenching of a body by the exertion of a lateral force. If a slender rod of metal be suspended vertically, and, having its upper end fixed, be twisted through a certain angle by a force acting in a plane perpendicular to its axis, it will, on removal of the force, untwist itself, and return with greater or less velocity, and after a series of oscillations, will come again to a state of rest. The limits of torsion within which a body will return to its original state, depends on its inherent elasticity. A fine wire of a few feet in length may be twisted through several revolutions without impairing its elasticity, but if carried beyond a certain point, the fibers or particles will be torn asunder and assume a new position, as, for example, in a lead wire, before finally breaking.

Atacamite.

Chloride of copper is a mineral of a green or greenish black color, and adamantine or vitreous luster. It occurs in massive fragments, in rhombic prisms and rectangular octahedrons, which give off fumes of hydrochloric acid gas when heated before the blowpipe. This compound is found in Saxony, the neighborhood of Vesuvius, and the desert of Atacama, between Chili and Peru. In Chili this mineral is ground into powder, and sold under the name of *arsenillo*, as a sand for dusting letters.

A NEW COMET.—H. P. Tuttle, of the Harvard College Observatory, discovered a telescopic comet on the evening of the 4th inst. It was first seen at half-past seven P. M., and makes the fourteenth comet discovered at that Observatory. It is in the northern part of the heavens, and can only be seen with a powerful telescope.

We Americans have manufactured 25,965 miles of railroad, which, if it could be stretched in one continuous line around the waist of Mother Earth, would still leave her about a thousand miles for a bow-knot.

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New Inventions.

American Inventions Patented in Great Britain.

The much talked-of American ingenuity is no mere vain boast, but a sterling and living fact, which is gradually making an impression deep and lasting on the continent of Europe. The great number of Americans who take out patents for inventions in Great Britain may be estimated from the fact, that by one steamer we have received *nine* specifications of American inventions patented in Great Britain through the Scientific American Patent Agency alone! By a short analysis of these nine we shall be able better to estimate their influence on British social economy. First, there are three inventions of W. Mt. Storm, of this city; one on repeating firearms, which gives to revolvers greater readiness of operation, durability and facility for repair, combined with elegance and compactness, and also ensures more quickness and certainty in the operations of loading and firing, under such contingencies as occur on horseback, or while in a boat, and avoids the fouling of the lock by the smoke and gas resulting from the discharge. Another is for an improvement in breech-loading fire-arms, whereby the force of the discharge tightens the joint between the chamber and the barrel. A third is for a hand bullet-mold, which allows of bullets being made by hand with great perfection and speed. These inventions, in combination with many other American devices in the art of war, now in use in the British army, teach us that even if our people do not sanction alliances, offensive and defensive, they at least furnish some of the material used by the Old Country in her attempts to spread civilization and Christianity in the dark quarters of the earth.

H. W. Adams, of Brooklyn, N. Y., patents a compound for feeding, especially adapted to the respiratory organs of animals. It is produced by the oxydized residuums of the distillation of volatile or solid hydro-carbons, such as coal, tar, or resins and balsams in combination with corn, potatoes, rye, oats, barley, buckwheat, or other farinaceous or feculaceous substance.

The construction of boats, buoys, and floats made of gutta percha, or gutta percha mixed with glue, and manufactured by pressure while in the heated state, at one operation, has been patented by E. B. Larchar, of New York. Such an invention cannot fail to prove valuable in a country with such dangerous shores as England; and where a liberal and humane Duke, now deceased, offered some hundreds of pounds as a prize, for the production of a good life-boat.

S. J. Burr, of Brooklyn, N. Y., has patented a fluid meter, which is of the flexible diaphragm description. This invention consists in transmitting motion in a peculiar manner from the flexible diaphragm to the valve or valves, by which the direction of the flow is changed to fill and discharge the measuring chambers, and to the registering apparatus, whereby packed working joints are entirely dispensed with, and the movement of the meter is made very easy.

The invention of S. Gardiner, Jr., of New York, illustrated on page 320, Vol. XII, of the Scientific American, and noticed on page 131 of the present volume, has also received Letters Patent.

James Harrison, Jr., of New York, has invented considerable improvements in the manufacture of coiled springs, such as are used for sofas and chair seats. He employs a conical mandrel, and passes the wire around it by means of three rollers, so arranged that they are always advancing and retiring along the surface of the mandrel, and by this means give the double conical shape to the spring.

John S. Blake, of Claremont, N. H., has given his aid towards proving the practical turn of the American mind, by inventing some improvements in the manufacture of paper, which consists in the combination of a pump vacuum chamber, air and water chambers, pipes and vacuum chest, provided with cocks, whereby the pulp on the endless wire cloth is compressed, and deprived of moisture by atmospheric pressure, and the edges of the paper cut or trimmed in a perfect manner. Another improvement is in the means employed for stretching or keeping in a distended state, and also for guiding, the endless felt apron which conveys the paper from the wire cloth apron to the usual pressure and heated cylinders.

Let us recapitulate: Three patents for fire-arms and connecting apparatus, one each for the preparation of food, construction of boats fluid meter, lighting gas by electricity, manufacturing springs and paper; subjects so varied, all real substantial improvements, owned by Americans and used in Britain. Who shall say that we are not leaving the impress of our progressive hand upon the age in which we live?

PATTERSON'S GRAIN AND GRASS HARVESTER.

Fig. 1

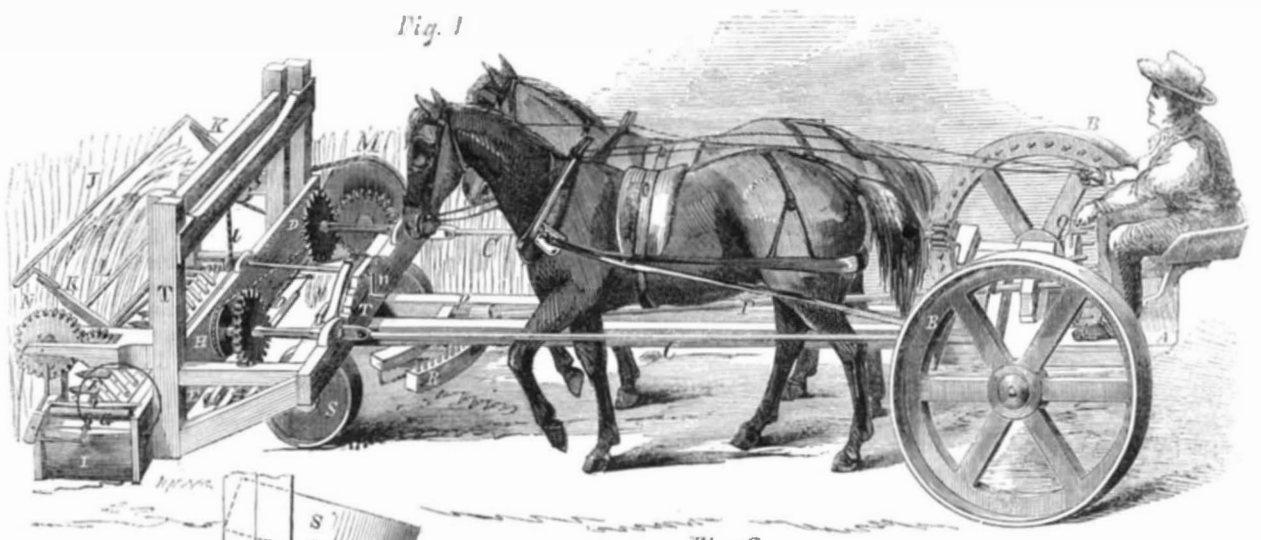
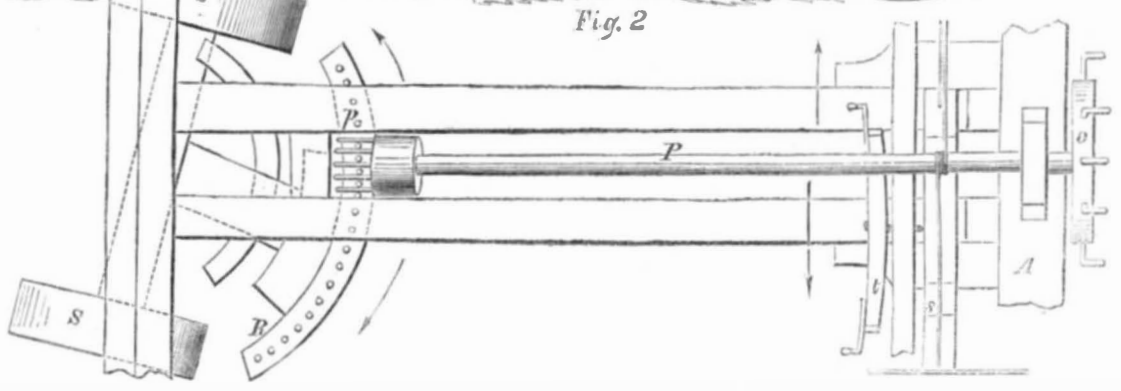


Fig. 2



This is a harvester containing many important and valuable improvements, all tending to increase the utility of the machine, and adding to its practical value, the chief of which is having the steering apparatus under the perfect control of the driver, so that all side draught is avoided.

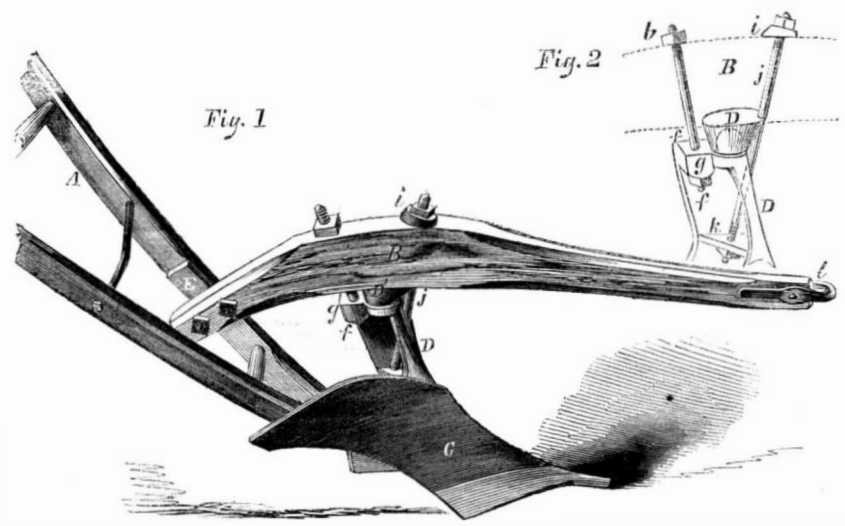
In our engravings, Fig. 1 is a perspective view of the harvester, and Fig. 2 a plan view of the steering arrangement. A platform, A, is supported by two wheels provided with gear teeth, B, which, as they rotate, by moving along the ground, give motion to the horizontal bars, C, each of which carry a cog wheel, D, at the end, one giving motion to the cutting device, and the other to the raking or gathering arrangement. The cutters, F, are operated by the eccentric and connecting rod, E, and may be covered with an endless band passing over two rollers, one of which is shown at G, and operated by the band and wheel, H, and the straws are delivered from the band in sheaves by the measuring device, I. The raking attachment consists of a bent rod, J, attached to two arms, K, which are given a back and forward and up and down movement simultaneously, by being suspended on the crank-shaped axle, L, which is rotated by the band and gear wheels, M. All the front part is placed in a frame, N, which is capable of being elevated or depressed by the crank, *n*, pulley, *m*, and cords, *l*. The steering arrangement will be seen in Fig. 2. On the platform, A, is a hand wheel, O, the axle of which is a shaft, P, having a pinion, P, at its end, working into a rack, R, which turns the two wheels, S, supporting the front framing, T, by a king-pin. This hand wheel is operated by the driver, and by the cords, *s*; it also moves the board, *t*, having the hooks to which the horses are attached connected to it, thus always throwing the line of draught in the same direction as the machine is steered by the two front wheels, S.

It is the invention of N. A. Patterson, of Kingston, Tenn., and was patented by him on the 13th of October, 1857. He will be happy to furnish any further information.

SHARP'S IMPROVED PLOW.

Fig. 2

Fig. 1



This improvement consists in the method of attaching the share, and other parts of the plow, to the beam, so that the farmer may always be able to adjust the line of draft to the right place; and at the same time it makes the plow stronger, as the front bolt, *j*, acts as a strong brace. The cost is not increased, and although a few pounds more metal is added, less wood is required in its construction.

In our engravings, Fig. 1 shows the plow in perspective, and Fig. 2 is a view of the attachment separated. A are the handles, and B the beam. E is a wedge, by whose means the plowman can give the plow more or less land. C is the share, from which rises an upright casting, D, having on its end the semi-spherical projection shown by dotted lines in Fig. 2, which fits in the cavity of the piece, D′, interposed between it and the beam. A bolt, *f*, passes through the beam, and is secured by a nut, *b*, at the top, and after passing through *g*, being part of the plow, it is again fastened by a nut. Another bolt, *j*, passes through the beam, and is secured by a nut under the little platform, *k*, and on the top of the beam by a nut, *i*. The semi-spherical projection on D and D′, is an efficient method of securing the plow to the beam, and at the same time retaining a sufficient amount of elasticity. The clevis, *l*, is also a convenience in gearing up. The plowman takes out the bolt, and the clevis drops down, and hooks directly in the double-tree.

It is the invention of Thomas Sharp, of Nashville, Tenn., and was patented by him October 6, 1857. He will give any further information on being addressed as above.

A Great Waterfall.—The falls of Kakabacca, on the Red River, are 172 feet high, and though not so wide as those of Niagara, are stated to be much grander and wild

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Scientific American.

NEW YORK, JANUARY 30, 1858.

Patent Monopolies in Olden Times.

In conversation with one of our oldest and most distinguished American inventors, a few days since, he, by a few brief remarks, forcibly directed our attention to the great difference between the present and past times, in relation to the value of patents. About forty years ago, he obtained a patent for a very useful and valuable invention; but this, instead of advancing his interests and establishing his reputation, seemed to produce quite the opposite results. On account of his having secured the invention by a "patent," he was regarded with suspicion, there existing, at that time, a strong prejudice in the community against all patentees. This he found to operate so injuriously against him, that when he was—from the force of circumstances—compelled to offer his patent for sale, (which he thinks would easily have brought $300,000 at the present day,) he found it difficult to obtain a purchaser for $3,000. The person that finally bought it was a very shrewd man, who esteemed its value, and afterwards reaped great advantages from it, as a manufacturer.

Prior to the reign of James the First, in England, it was quite customary to grant monopolies for the manufacture and sale of certain articles, without the least reference to invention. These patents were exclusive grants, which oftentimes stopped old manufacturers from pursuing their established callings; and they were frequently bestowed upon court favorites, or other individuals who had sufficient means, or other equally attractive peculiarities, to bribe the monarch or his ministers. For instance, one person or company got a patent for the manufacture of beer, another for hats, &c., thus monopolizing the trade in their lines of business.

Such exclusive privileges were violations of the peoples' rights, and were, of course, generally detested. The practice of granting such privileges was abolished in the reign of the king referred to; and the law of patents, which recognized only inventors and introducers of new manufactures, was enacted. Prejudices, however, are not easily rooted out; and no doubt they reigned in the minds of many of our early settlers, long after the English practice of granting unjust monopolies had been abolished. Some of our colonies, also, did many things to create and foster such prejudices. Under the mistaken but laudable desire to introduce new manufactures, various monopoly patent grants were made to persons who did nothing to deserve them; but this practice was swept away at the establishment of the Federal Union. The central government early enacted a patent law, on the basis of the English code, under which no one could secure a patent but for some new and useful invention. This law possessed none of the features of a monopoly, because no established right was taken away, or destroyed by it; but it did not immediately eradicate the prejudices which had existed against patents, and those to whom they were granted. This is the reason why patents—many of them for most useful inventions—were, at one time, of so little value in our country. We mean to be understood that these patents, even in the limited extent of our manufacturing operations *then*, were depreciated below their real value, owing to the public prejudice which existed against them. These prejudices, we are happy to say, are nearly all abraded from the minds of the people; and the respected old inventor to whom we have referred, in alluding to this, warmly remarked "inventors do, indeed, live in better times now."

There is no property which is more valuable or respected than patents at the present time, or more justly deserving protection and favor. A new patent destroys no old right belonging to a single individual; it is a certificate from the government, signed by officers appointed for that purpose, that the person to whom it is granted has discovered something useful which is not known to have been in existence previously. This is the principle upon which patents are granted under the existing laws. The inventor to whom we have referred, has, to use a common but trite expression, become "well to do in the world," and he deserves this, because he has enriched it by the treasure of his genius. As every new improvement adds something to the solid wealth of the community, it is a good thing for us that the rights of inventors are more respected, by the public, and their inventions better protected by our courts than formerly.

The prejudices to which we have referred once found a place even in the United States Patent Office. At one time its policy seems to have been strenuously exerted to find arguments on which to refuse patents, when evidence, as well as duty, should have counseled a different course of conduct. Instead of assisting inventors by candidly examining their claims, and deciding upon them with a liberal spirit, as the law contemplates, their claims were examined with prejudice, and oftentimes rejected upon the most frivolous pretexts, comparisons and references. A different spirit now reigns in the national counsels, and more ample and equable provisions have been made for securing the rights of inventors. Although patentees live in better times *now* than *then*, we are confident that still better times are yet in store for them.

Protection of Wood from Fire.

This is a subject of much consequence on account of the great number of wooden structures in our country, and the serious accidents from the conflagration of steamboats and buildings which take place so frequently. Various substances have been employed to coat wood so as to render it incombustible. Alum, lime and clay, in solutions, have been the most common and the cheapest substances applied to such purposes, but not with that success which is desirable. The attention of our steamboat inspectors has often been directed to this question, but, so far as we have been informed, no experiments have either been devised or conducted by them for shedding light upon it. In recent numbers of the London *Mechanics' Magazine*, we find some very useful information connected with this subject, which we know will be very useful and interesting to our readers. It was proposed by Mr. Abel to *pay* the timber beams and bulkheads of ships with a solution of the silicate of soda to render them partially, at least, if not perfectly incombustible, to check the progress of fire in cases of conflagration in vessels. Specimens of wood thus prepared at Portsmouth, England, were submitted to the action of fire conjointly with unprepared timber, and it was found that while unprepared wood of the same dimensions and character burned rapidly away under intense heat, that prepared with the silicate solution smoldered very slowly. The silicate seemed to fuse and cling to the surface of the wood under fire, and thus protect it. Those who conducted these experiments were satisfied that wood coated with the silicate of soda, and used for beams, bulkheads, or the undersides of decks and sides of vessels, would not be liable to take fire; and if the cargoes of vessels, with timbers so prepared, should take fire, it would be easy to confine the conflagration to the spot where it commenced, and secure time for efforts to suppress it. A slight application of lime-wash to wood affords some protection from fire, so does a coating of clay, but these are liable to scale off, and are therefore not suitable.

A process was lately patented in England, by E. Maughann, for securing this object. It consists in saturating dried wood with an aqueous solution of the phosphate of soda and muriate, or sulphate of ammonia. The patentee thinks that when wood prepared with these substances is submitted to the action of fire, such a quantity of vapor will be generated by the ammoniacal salts as will extinguish the fire. Another patent process was that of Lieut. Jackson, and consisted in impregnating the wood with solutions of the salts of zinc and ammonia. The wood was prepared by these solutions in large cylinders, the air exhausted, and the liquid forced in under a pressure of 150 pounds on the square inch, which was maintained for two hours before the timber was ready to be taken out. Brunel, the designer of the *Leviathan*, tested seventeen different kinds of wood prepared by Lieut. Jackson's process, and it was found that they all withstood the action of fire in a superior manner to unprepared or painted wood. Both of these processes are expensive, however, and when the solutions are strong, they tend to injure the strength of the timber.

A wooden hut having been erected in the Woolwich Marshes to test the value of Phillip's fire annihilator, it occurred to Mr. Abel to test the value of the silicate of soda; also, a solution of lime and alum, as fire protectives, and some of the timbers of the hut were therefore washed on the surface with these solutions. The alum and lime solution was of little avail, and the annihilators failed to extinguish the fire, but the planks treated with the silicate of soda greatly retarded the fire, as they did not blaze, and presented merely a charred appearance by the intense heat. After this experiment, it was suggested that, in order to render the application of the silicate of soda less expensive, the wood should receive a primary coating of the silicate applied with a brush; then, when dried, a coating of common lime whitewash and dried, and afterwards a finishing coating of the silicate of soda, somewhat stronger than the first one. Wood thus prepared was submitted to a great variety of tests with decided success. The protective coating resisted the action of fire to a remarkable degree, and did not scale off; and when exposed to the action of a stream of water, it could not be washed off. Upon the result of these tests being reported, an order was issued by Lord Panmure to make further and more perfect experiments at Chatham, under the direction of Col. Sandham and Mr. Abel, to determine practically and fully the value of the silicate of potash and lime wash, as described, to protect wood from fire.

The experiments were made, and Col. Sandham and Mr. Abel conducted them, and they have reported the results. That report, in substance, states that the silicate of soda, in conjunction with lime wash, applied to the surface of wood with a brush, affords great safety to wooden structures in cases of fire. It is not a perfect protective, as this result cannot be expected, but it is a cheap and good safeguard, and they recommend its use by government. The cost of the silicate for the purpose described was only about four cents for coating a surface of ten square feet. It was applied in the form of thick sirup, the lime-wash was about the thickness of cream, and the last coat of the silicate was a little stronger than the first. The surface of the wood to which it is applied must be free from paint or grease, and care must be exercised not to put on the lime too thick, because it will then be liable to crack off.

This is a subject to which we wish to direct the special attention of our engineers and architects. Very frequent conflagrations take place on the Mississippi river steamers, many of which may be prevented, or at least saved from the disastrous results generally attending them, by the use of this method of coating the inside of their timbers.

Fossilization.

The division of the crust of the earth into three great orders or epochs of time, in which a peculiar class of rock was formed or deposited, is a natural as well as proper distinction. The primary, secondary and tertiary rocks are distinguished from each other, not so much by the physical characteristics of the stone composing them as by the genus and species, and, in some cases, the totally different forms of life which inhabited the world at the time of the deposition of these rocks. These relics of past life—these monuments of extinct existence, found by the mason in the stone and by the child in the pebble of the brook, looking sometimes like a shell carved in stone, or a footmark that has suddenly become petrified—these relics are called "fossils;" the process by which they have been formed is very simple, and is going on all around us at the present day. Those animals and insects of whose outer form we have such perfect imprints, those leaves and branches that are now found in the coal fields of our country, once lived, as do the animals of the passing hour, and the ferns and mosses of familiar glens. They died; and the shell left upon the sea-shore became gradually covered with mud, the mud hardened, the bed of the ocean was gradually upheaved, and the shell remained encased in its hard tomb. The home of the fern and moss, gigantic as cedars and spreading out like vines, became a swamp, was inundated with water, the mud rose, a process of carbonization was gradually, but surely and minutely carried on; and we now discover their shapes and forms in the coal that gives us warmth and light, and by the destruction of which we create a gas which will effect the same purpose as was effected when the coal was made. Fossilization is going on now as surely as ever before; and though historians may prejudice our age, and novelists wrap around it a mantle of romance, yet the forms of life which now exist will tell a tale to future generations—a tale cut by Nature's hand in her own monumental marbles, and so full of truth that none can gainsay it. Civilization leaves her mark even on the shape and size of animals; her magic touch will be retained long after the recipients have sunk into oblivion.

Patent Extensions and Lobbyists in Congress.

We would call the attention of our readers to an article on another page, copied from the *New York Herald* of the 23d inst., concerning the movements of some of our wealthiest patentees to get their patents extended by Congress. Most of the applicants were refused extensions on application at the Patent Office, for the reason that they could not show that they had not already reaped a rich reward from their patents. Others have unsuccessfully besieged Congress, session after session, until their patents have long since expired, and now they have the audacity to ask Congress to renew them. Where are the Woodworth assignees? Why are they not on hand to see if they cannot get Congress to revive the Planing Machine monopoly? We shall watch these Congress vampires and the lobbyists they employ to operate the wires for them, and shall make a note from time to time of what is going on at the Capitol.

We shall also have something to say on the new Patent bill, just presented by Mr. Taylor, M. C. of Brooklyn, N. Y., as soon as it is printed, giving an account of its origin, and pointing out some of its peculiarities.

Hughes' Telegraph.

This telegraph is now in successful operation at No. 10 Wall street, where we had an opportunity of witnessing the simultaneous sending and receiving of a message to and from Philadelphia, one day last week. It is operated by keys, and prints despatches in Roman characters from a revolving type wheel, like the House telegraph. The two messages referred to were sent on a one-wire line—the one from New York passed on the wire, the return message on the ground part of the circuit. It is more simple than the House telegraph, but far more complex than the Morse telegraph—the latter is our favorite on account of its simplicity.

Curious Discovery.

"Mr. Pagdaroff, of St. Petersburgh, announces that, by a new method, he has succeeded in extracting from birds' feathers the pigments which color them."

[The above paragraph appears in a cotemporary journal, and, to our ideas, is rather doubtful. We should not be more surprised if this Russian gentleman were to extract the notes from bird's throats and lungs, and thus supply bottled music.—EDS.

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The "Patent" Lobby in the Field.—The Different Interests at Work, &c.

[Washington correspondence of the New York Herald.]

The patent lobby is gradually coming in the field this session, though, so far, the india rubber interest has kept rather out of the way. Sam Colt, the pistol man, has rented a house here, and made application for a revival of his expired patent. His prospects in that connection are not brilliant; for whilst many members do not object to voting for the extension of an existing patent where a plausible cause can be shown, there are several of them who regard the revival of an expired patent as a different matter. They consider that when a patent has expired, the right to it becomes vested in the public, and that Congress has no constitutional right to deprive the public of this acquired right. But in Colt's case it is hard to understand what solid pretence he can set up for a revival of his monopoly. As he was a poor man when he commenced, is now wealthy, and has made all his money out of his patent, he cannot seriously pretend that he has not had that reasonable reward for his invention which is all the principle which the patent law contemplates. The shorter the time a patent monopoly exists, consistent with a due reward for the inventor, the better for the public and the progress of inventions. To extend them for an unreasonable period, is to stop, during that time, all improvements in the particular article, except what the original inventor chooses to adopt. Col. Colt has made good contracts with the English, French, Russian and American governments, and he is scarcely an object for the eleemosynary regard of Congress.

McCormick, the reaper patentee, is also here, trying to get, not an extension of his present patent, but a revival of the first patent he took out, for a crude machine which he never made work. He improved on this crude principle, and has a patent for his improvment. But what he seeks is a revival of the patent on his first crudity, so as to prevent any other person from making improvements on it, as it might interfere with his present monopoly. He has plenty of money to prosecute his matter, but so far he has had but meager success, either at the Patent Office or in Congress. He has been trying to get a bill passed for several years, and is here again to resume his labors.

The india rubber interest consists of the Chaffee patent, the Hayward patent, Horace F. Day's claims, and the Goodyear patent. The Chaffee and the Hayward patents have expired, and their renewal is sought. They are both for preliminary processes in the manufacture of the vulcanized rubber, and either of them, if revived, would control the Goodyear patent. The Goodyear patent expires next June, and the Commissioner of Patents will then decide whether he will extend it for six years or not. This interest is one of the wealthiest in the country; and the profits, if either Hayward's patent or Goodyear's is extended, are computed as high as fifty million dollars.

There was a large lobby here last year in the india rubber interest, and I see some of the managers again on the ground.

Sorgho Sugar.

About three months ago, the possibility of obtaining crystallized sugar from the Chinese cane was publicly denied by a number of persons who had made experiments with the juice, some of whom were known as scientific men and practical sugar refiners. Such opinions naturally led astray those who had no means of making experiments for themselves. It is a curious fact, however, that at the very time when such opinions were being propagated, the most effective shot and shell were being prepared for their demolition. We had thought, from what we have already published on this subject, that but little if anything useful could be added to our stock of knowledge until experiments were made with the future crop of this year, but in this opinion we have found ourselves agreeably mistaken. We had received some excellent samples of this sugar from various parties, but no certain data as to the quantity and quality of the sugar to be obtained from the cane per acre; but we have now received very satisfactory information on this point. Mr. Joseph Lovering, of Oakhill, Philadelphia county, Pa,, a very scientific and practical sugar refiner, has sent us a box containing as beautiful samples of loaf, white, granulated and brown Sorgho sugars as any cane sugars whatever. He had planted half an acre of the seed on his farm, and with the stalks of this he made correct and scientific experiments. Before proceeding to refine the juice, he wisely examined it with the polariscope to see if it gave the usual indications of possessing crystallizable sugar. This examination afforded the proof that it contained 5·57 per cent of sugar; and from this data he went on, and made those experiments with the juice which resulted in the samples of beautiful sugar he has sent us. Mr. L. has also given a detailed account of his efforts in a well written pamphlet, and from these he has arrived at the conclusions that an acre of this cane, in a good season, will yield about 1,466 pounds of sugar and 74 gallons of molasses—a result corresponding to that obtained on the Louisiana plantations with the real sugar cane. The experiments of Mr. Lovering are of a reliable character, because they were performed with care, and he is not a mere theorist, but one well acquainted with sugar-refining in all its branches.

We apprehend, from the facts now spread out before the community regarding this plant, that it will be extensively cultivated during the next season. A convention of farmers was held on the 11th inst., at Springfield, Ill., to consult on measures as to its future cultivation. All present expressed themselves gratified with their experence with the cane, and resolved to give it more attention next season. One farmer present stated that its seed made flour equal to buckwheat in every respect, and the yield was twenty-five bushels to the acre. It was also asserted that we had no plant equal to it, in all things, because it could feed us with bread made from its flour, as well as provide us with our sirups and sugars.

In connection with this part of the subject, we would note a singular statement made by Dr. C. T. Jackson, at the meeting of the United States Agricultural Society, held at Washington on the 15th inst, viz., that about two years ago he had obtained a large percentage of crystallizable sugar from the juice of some Sorgho sugarcane grown at the United States Arsenal, Massachusetts. It is surprising that we never heard of this before, and that Dr. Hayes, of Boston, Mass., was unacquainted with it when he published his views as to the non-crystallizable character of the Sorgho juice.

In our next number we will have some remarks to make on another sugar-producing plant, the African *Imphee*, regarding which we have a letter from Governor Hammond, of South Carolina.

Water in the Sea.

On page 149 of the present volume of the Scientific American, there is a paragraph having the above caption, in which it is stated that "the water of our earth would form a globe of about sixty thousand miles in diameter." There is a mistake in the number, which should read, "about four hundred miles." If we allow the water on the globe to cover two-thirds of its surface, and suppose a general depth of about two hundred fathoms, it would give as the solid contents 33,513,246 cubic miles, from which data we calculate that this quantity of water can be contained in a sphere of the above diameter. There are many curious facts connected with the solid matter found in solution in the water of oceans and seas; for example, gold and silver are generally present in sea water, although in the most minute quantities, and in fact, traces of nearly every other metal have been found. This is accounted for by the supposition that many mineral veins must be exposed to the action of the water on the rocks which form its bed; and as there is an abundance of that universal decomposer, chlorine, it attacks and dissolves small quantities. We believe that Dr. Percy, the metallurgist, of England, was the first who demonstrated the presence of gold in sea-water.

In regard to errors which from time to time creep, almost unawares, into the columns of every journal, we would state that they occasion us much annoyance, and we are glad to correct them. They seem almost unavoidable at times when the printer is clamorous for short items to "fill up."

Recent Patented Improvements.

The following inventions have been patented this week, as will be found by referring to our List of Claims on another page:—

Millstone Eye.—This invention consists in placing a cylinder within the eye of the upper stone or runner, and giving the cylinder a vibratory movement, so that the eye will be prevented from becoming clogged. Winser Smith, of Princeton, Iowa, is the inventor.

Feeding Device for Sawmills.—Hiram Wells, of Florence, Mass., has invented an improved combination of mechanism to feed the stuff to the saws of sawing machines, and to gig back the frame when the stuff is sawn through.

Cut-of for Steam Engines.—Addison Crosby, of Fredonia, N. Y., has invented a new cut-off for steam engines. It is an excellent invention, although it is impossible to explain it without accompanying drawings.

Sawing Machine.—A curved or segment saw is placed in a swinging frame, and so arranged that any of the ordinary horse-powers may be employed, and logs can be sawn with much greater facility and more rapidity than by the ordinary up-and-down or circular saw. It is the invention of John Mays, Yazoo City, Miss.

Sawing Machine.—This invention consists in attaching the upper and lower ends of the saw to springs, and giving the saw a reciprocating motion by means of a cam, so that the saw is properly strained without a sash, and all "back lash" is prevented. There is also an attachment for blowing away the sawdust off the stuff in front of the saw, so that the tracing or line to be followed can always be seen. It is the invention of U. B. Vidal, of Philadelphia, Pa.

Double-Seaming Machine for Tinned Ware.—The great quantity of tinned ware in every-day use, and consequent regular demand for it, has stimulated inventors to originate or improve the machinery employed in its manufacture. This machine, the invention of L. E. Porter, of Lake Mills, Wis., has a peculiar arrangement of frames which contain the rollers that perform the work—that is, the closing of the seams and joints; by this arrangement a double seam or locked joint is closed or formed, thus making a more perfect joint than by the ordinary machines.

Machine for Forming the Brims of Hats.—This invention consists in the employment of two pairs of conical rollers—the upper rollers of both pairs being placed in a vibrating frame, the lower rollers of the pairs are allowed a certain degree of vertical play or motion. The two pairs have different speeds imparted to them, and are arranged with an adjustable bed and rotating plate, on which the hat that is to have a brim rolled out is placed. It is the invention of W. A. Fenn, of Brookfield, Conn.

Rope Machines.—William Coutie, of Troy, N. Y., has invented some improvements in that class of rope-making machines known as the "sun and planet" machine, the object of the new arrangement being to prevent the great development of centrifugal force which is at a high speed so injurious to the common "sun and planet" machine, and thereby to enable the machine to be driven with safety at a much greater speed. Another object is to keep the machine always in balance, and to prevent the injurious action which, in the common machine, results from the unequal quantities of strand on the flyers, causing the machine to get out of balance.

Covering Nail Heads.—A machine has been invented by J. P. Blake, of Waterbury, Conn., for covering nail heads with thin sheet brass or other metal. It first presses the piece of metal forming the cover on to the head of the nail by means of a die, and afterwards bends the surplus metal under, thus forming a perfect and fast cover. The machine performs all the operations of feeding, &c., automatically.

Magnetic Car Brake.—Various have been the methods proposed to enable electro-magnetism to be used not only as a motive power, but as a method of arresting motion. For the latter purpose the car brake invented by S. D. Carpenter, of Madison, Wis., is one of the most simple contrivances. He attaches two electro-magnets (one each side) to the shoe bars, and has them connected with a convenient battery; the moment the current passes around them they grip the wheel tight, and tend to stop the car.

Shingle Planer—This machine employs two bevel carriages. These carriages are moved back and forth in opposite directions. The main improvement is in effecting the reciprocating of the two carriages by the simple means of two pinions and two self-adjusting racks, each of which has only one line of teeth, which are on its underside, but detached from the same. A secondary improvement is in having the head-blocks adjustable and self-confining, by the simple means of a set-screw and spring yoke with lip or catch. It is the invention of George Darby and J. E. Young, of Augusta, Me., and is very simple, and not liable to get out of order.

Railway Indicator.—Lewis Troost, of Mobile, Ala., has invented and patented (in England, June 15, 1857, and France, June 18, 1857) an apparatus for registering every second or other interval of time between the departure of a railway train and its arrival at its destination, by a series of marks produced in one or more lines by a pen, style or other marking instrument on a strip or sheet of paper or any other suitable surface, and the registration upon the same surface of every one or more revolutions of the wheels of the train, or of any wheel attached to one of the cars running on the tracks, by one or more series of marks produced in one or more lines parallel with or conveniently contiguous to the line or lines of registration of time by means of one or more pens, styles or other marking instrument whose operations are controlled by the said wheel. By the comparison of these registrations of time and distance—the registration of the revolutions of the wheel being an indication of the distance—the exact rate of the train at any time, can be determined; and the register of time proceeding when the train is stationary indicates the length of the stoppage, the localities of which are also indicated by a comparison with the registration of distance. The invention also consists in causing marks of a different character to those produced by the revolutions of the wheel in running forward, to be given when the wheel is running backward; such marks being continued in the same line or lines or nearly so as those registering the forward revolution of the wheel, so as to enable them to be compared with the registration of time to show the time occupied in backing; the different characters of the marks produced by the forward and backward revolutions of the wheel serving also to indicate the localities of the backing places, and by deducting the distances backed from the whole number of forward ones, the exact distance made by the train can be calculated. This is an invention of great value to railway companies, as it enables the superintendent to keep a perfect record of the performance of each train, and compare with accuracy the various results.

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Correspondents

S. W. B. of N. Y.—It will be somewhat troublesome for you to zinc the inside of your air chamber. Scour it bright with sand and a little sulphuric acid, then wash its surface with a solution of sal ammoniac, and plunge the air chamber into a bath of molten zinc, for ten minutes; this will coat it.

J. W. L., of Pa.—As we had nothing whatever to do with the cases to which you refer, we cannot answer your inquiry.

R. M., of S. C.—The best work on the construction of steam engines is Tredgold's, which is very expensive. "Hodge on the Steam Engine," published by Appleton & Co., this city, we think, will answer your purpose. We have volumes 6 and 7, bound, for $1 25 each, and volume 12, bound, $2 75. There are various steel squares now used by carpenters: ask some one of them to explain the scales on the blades, as it would require a large space for us to do so. We cannot give you the price of the stones employed in grinding corn.

C. E. E., of N. Y.—We cannot say that there is any absolute rule for the direction of the shadows on mechanical drawings. The most common method is to suppose the light to come from the upper left hand corner of the sheet; and this is the method we use in all drawings prepared at our office, for the reason that it is more convenient. In drawing with squares and straight-edges it is impossible, unless a person is left-handed, to draw with the light at the right side of the sheet. French draftsmen represent the light to come from the upper left hand corner in elevations, and the lower left hand corner in plans. The reason for making the variation in the plans is to make the light appear to fall on the object, (not on the paper,) always in the same direction. There is some reason in this, though we do not adopt it.

P. H. S., of N. Y.—As you state, we know that lead becomes brittle after several meltings and coolings; we have never made any experiments to restore it to its previous softness and ductility. We have been assured, however, that if it is heated up to a point very near, but not quite high enough to melt it, and then plunge it in cold water, it will be restored to its former softness. It will not be very troublesome for you to try the experiment.

S. W. D., of Fla.—We are not acquainted with any instrument for finding gold and silver. No such instrument exists, so far as we know.

H. K., of Ind.—We cannot give you a rule to shape a piece of metal or timber that will bend and for r. part of a perfect circle, by holding it fast at one end, and applying a deflecting weight at the other. To make a piece of metal or timber assume such a form by such means it should be perfectly homogeneous.

D. D., of N. Y.—We are of opinion that your room for drying lumber could be fitted up with a sufficient number of steam pipes at a less cost than to put up a large heater and force air through it with a blower driven by a steam engine. By running large flues through your drying rooms, and heating with common furnaces, you can dry the lumber more economically than by steam, but not so safely.

The "Smikes," and all others whom it may concern, are respectfully advised that letters sent to us, without proper signatures cannot receive any attention whatever. We can neither answer nor preserve anonymous letters. Our practice is to throw them into the waste basket *sans ceremonie*.

M. S. F., of W.—The chimera of perpetual motion has, ever since men began to study natural laws, been a phantom which has haunted the brains of the wisest philosophers; and we published the engraving and description of a supposed machine that would move for ever, on page 62 of the present volume of the Sci. Am., simply to show how a person becoming possessed of a fixed idea could indulge in the wildest dreams. Your experiment tried twenty-five years ago, with nearly the same appliance as that above referred to, convinces you of its utter nonsense, and we only wish that all the dreamers on this subject would follow your example and give it up, employing their talents and ingenuity on something that would be of practical benefit.

W. S., of N. Y.—Lard oil is obtained by submitting granulated lard placed in bags to severe pressure. The oil is the fluid which is squeezed out; stearine is left behind. Lucifer matches are tipped with the chloride of potash and phosphorus in a solution of gum arabic. A good paste blacking is made of 4 lbs. of ivory black, 3 lbs. of molasses, 9 oz. of hot sperm oil, 1 oz. of gum arabic, and 12 oz. of vinegar, mixed together and stirred frequently for six days. It is then fit for use.

E. P., of Iowa.—Voltaic electricity can produce rotary motion by many other means than the one you describe, and there is nothing really novel in your combination, although it may be original with yourself. Until the action of the battery itself can be made cheaper, voltaic electricity is of no practical use as a motive power.

H. B., of Ill.—There is no periodical published, so far as we know, specially devoted to "milling."

C. T., of Conn.—A preparation of gastric juice for curing dyspepsia cannot be patented. We have heard of the gastric juice of animals being used for this purpose, but have never known a single case ourselves.

S. R., and others, of Ill.—You will find all the information requested about floating heavy logs on page 98, Vol. XI, Sci. Am.

J. C., of N. J.—You can purchase "Chevreul's Harmony of Colors" from C. E. Bailliere, No. 280 Broadway, this city.

W. B. G., of N. Y.—Write to S. D. Humphrey, 297 Broadway, this city, regarding periodicals and works on photography. John Wiley & Co., this city, are the publishers of "Smee's Electro-Metallurgy," the kind of work you want.

J. S., of C. E.—No number of our paper contains the information which you want in regard to specifications and contracts for building purposes.

C. D., of Pa.—The ore you have sent us is iron pyrites containing perhaps a little copper. It is almost valueless.

H. W., of Mass.—Iron is annealed by cooling it from a high to a low heat very slowly. The result is not due, as you suppose, to cast or wrought iron turnings.

C. S. H., of N. Y.—Your method of producing ornamental slabs for tables and other articles of furniture, seems to consist of a mixture of mosaic and buhl work, and to resemble, in a great degree, what is known as marquetry in woodwork. There have been so many varieties of inlaid work in marble, wood, shells, metal, ivory, mother-of-pearl, and other substances, that it would be impossible for you to obtain a patent. We have seen table-tops made as you propose, of different colored marbles.

R. A. M., of Conn.—Rye flour bolted but once, merely to remove the bran, is the sweetest—it is the same with buckwheat; but the flour sent to market, goes through two boltings at least. The number of bolting cloths used entirely depends on the kind of flour desired to be made.

Ralph Grow, of Aledo, Mercer co., Ill., wishes to correspond with some one who can furnish the best plans for a court-house and jail combined, the cost not to exceed $20,000.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, January 23, 1858 :—

S. B. & S., of Pa., $25; F. C. W., of Conn., $60; C. F. A., of N. H., $30; F. P. A. Jr., of Conn., $30; J. H. of N. Y., $30; S. E. T., of Conn., $10; C. F., of N. Y., $35; C. B. C., of N. Y., $30; C. B., of Mass., $35; J. B., of Pa., $30; T. S., of Conn., $30; S. W., of Mass., $25; J. A. & A. D., of N. Y., $25; J. J., of S. C., $40; P. D., of N. Y., $30; E. K. & Bro., of Vt., $55; W. O. H., of Pa., $55; P. A. G., of Mass., $27; A. E. L., of Pa., $10; H. B., of N. Y., $30; H. & G., of Ohio, $17; C. M., of N. Y., $25; T. S., of N. Y., $15; H. A. L., of N. Y., $25; J. B. A., of N. Y., $25; V. & H., of N. Y., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, January 23, 1858 :—

C. M., of N. Y.; W. & S., of Mass.; S. B. & S., of Pa.; S. E. T., of Conn.; T. S., of N. Y.; S. W., of Mass.; H. A. L., of N. Y.; J. B. A., of N. Y.; C. B., of Mass.; H. & G., of Ohio; P. A. G., of Mass.; J. A. & F. D., of N. Y.; G. I. L., of N. Y.; E. L. E., of R. I.; V. & H., of N. Y.

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FOR SALE—SIX OF WOODWORTH'S PLANing Machines. Plane 24 inches wide, and 5 inches thick. Iron frame; weight, 1,800 lbs. Price, delivered in New York, $180. Address HARRISON FLINT, Danbury, Conn.

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will be, as usual, at No. 128 Fulton street, New York. There is no other city in the Union so easy of access from every quarter as this, consequently there are greater advantages in regard to the transmission of models, funds, &c., through the various channels that center in New York. Two of the partners of our firm reside here, and during the hours of business are always at hand to counsel and advise with inventors. They are assisted by a corps of skillful Examiners, who have had many years of active experience in the preparation of cases for the Patent Office.

To render our Patent Agency Department complete in every respect, we have established a

BRANCH OFFICE IN THE CITY OF WASHINGTON,

on the corner of F. and Seventh streets, opposite the United States Patent Office. This office is under the general care of one of the firm, assisted by experienced Examiners. The Branch Office is in daily communication with the Principal Office in New York, and personal attention will be given at the Patent Office to all such cases as may require it. Inventors and others who may visit Washington, having business at the Patent Office, are cordially invited to call at our office.

A SPECIAL NOTICE.

We especially require that all letters, models and remittances should be made to our address at New York.

EXAMINATION OF INVENTIONS.

We have been accustomed from the commencement of our business—twelve years since—to examine sketches and descriptions, and give advice in regard to the novelty of new inventions, *without charge*. We also furnish a printed circular of information to all who may wish it, giving instructions as to the proper method which should be adopted in making applications. This practice we shall still continue, and it is our purpose at all times to give such advice free and candidly to all who apply to us. *In no case will we advise an inventor to make application unless we have confidence in his success before the Patent Office.*

Our extensive experience in mechanical and chemical improvements enables us to decide adversely to nearly one half of the cases presented to us for our opinion, before any expense has occurred in the preparation of the case for a patent.

When doubt exists in regard to the novelty of an invention, we advise in such cases a

PRELIMINARY EXAMINATION

to be made at the Patent Office. We are prepared to conduct such examinations at the Patent Office through our "Branch Agency," upon being furnished with a sketch and description of the improvement. Our fee for this service will be $5.

After sufficient experience under this system, we confidently recommend it as a safe precautionary step in all cases before application is made for a patent—not that there will be no rejections under this system. It is impossible to avoid such results in many cases, owing to the exceedingly wide range taken by the Examiners in the examination of cases; but, nevertheless, many applicants will be saved the expense of an application by adopting this course. Applicants who expect answers by mail must enclose stamps to pay return postage.

THE COSTS ATTENDING AN APPLICATION

for a patent through our agency are very moderate, and great care is exercised in their preparation. No cases are lost for want of care on our part in drawing up the papers, and if the claims are rejected, we enter upon a speedy examination of the reasons assigned by the Commissioner of Patents for the refusal, and make a report to our clients as to the prospects of success by further prosecution.

A circular containing fuller information respecting the method of applying for patents can be had gratis at either of our offices.

REJECTED APPLICATIONS.

We are prepared to undertake the investigation and prosecution of rejected cases, on reasonable terms. The close proximity of our Washington Agency to the Patent Office affords us rare opportunities for the examination and comparison of references, models, drawings, documents, &c. Our success in the prosecution of rejected cases has been very great. The principal portion of our charge is generally left dependent upon the final result.

All persons having rejected cases which they desire to have prosecuted are invited to correspond with us on the subject, giving a brief history of their case, enclosing the official letters, &c.

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We are very extensively engaged in the preparation and securing of patents in the various European countries. For the transaction of this business we have offices at Nos. 66 Chancery Lane, London; 29 Boulevard Saint Martin, Paris; and 3 Rue Therrsienne, Brussels. We think we may safely say that three-fourths of all the European patents secured to American citizens are procured through our Agency.

Inventors will do well to bear in mind that the English law does not limit the issue of patents to inventors. Any one can take out a patent there.

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☞ Remember the SCIENTIFIC AMERICAN PATENT AGENCY, No. 128 Fulton street, New York.
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The annexed letter from the late Commissioner of Patents we commend to the perusal of all persons interested in obtaining patents :—

MESSRS. MUNN & Co.—I take pleasure in stating that while I held the office of Commissioner of Patents, MORE THAN ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE came through your hands. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the Office, a marked degree of promptness, skill, and fidelity to the interests of your employers.

Yours, very truly, CHAS. MASON.

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Consulting Engineer, 64 Broadway, New York.

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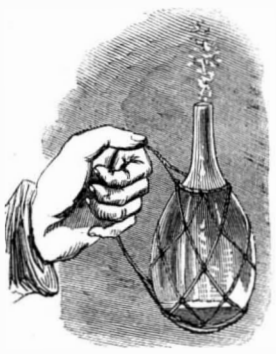
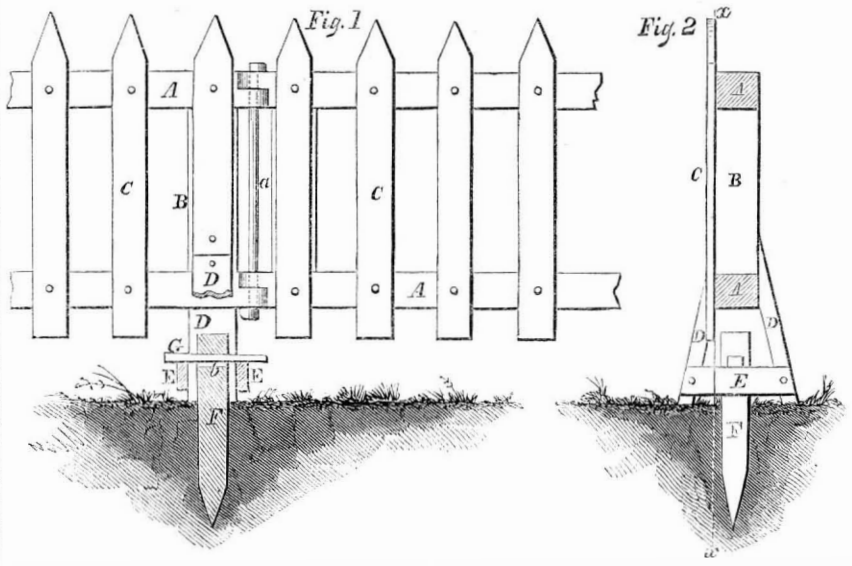
The air which for about forty miles surrounds our earth has a definite weight; and although we can neither see or feel it, we are conscious of its presence by the momentarily operation of breathing. The weight of a column of air one inch square, and forty miles high, is about fifteen pounds. The reason why we are not crushed down by this enormous weight is, because we are surrounded on all sides by it, and as the pressure or weight is equal all around, it becomes, as far as we are personally concerned, insensible.

That the air *does* exert a definite pressure, in consequence of its weight, may be easily proved by any one with the above simple apparatus—only a tumbler and a sheet of paper. Fill a tumbler quite full of water, and carefully draw over its top a sheet of clean letter paper, and be careful to see that there are no bubbles of air in the water; place your hand over the paper while inverting it, and when the glass is mouth downwards the water will be kept in, until the paper becomes wet through. The air pressing against the mouth of the tumbler is of greater weight than the contained water, and so until some air can get in, to supply the place of the water, it cannot fall out.



This experiment is a demonstration of the heat and light which are evolved during chemical combination. The substance, phosphorus, has a great affinity for oxygen gas, and wherever it can get it from, it will, especially when aided by the application of heat. To perform this experiment, put half a dram of solid phosphorus into a Florence oil-flask, holding the flask slantingly, that the phosphorus may not take fire, and break the glass; pour upon it a gill and a half of water, and place the whole over a teakettle lamp, or any common lamp, filled with spirits of wine; light the wick, which should be about half an inch from the flask; and as soon as the water is boiling hot, streams of fire, resembling sky-rockets, will burst at intervals from the water; some particles will also adhere to the sides of the glass, immediately display brilliant rays, and thus continue until the water begins to simmer, when a beautiful imitation of the aurora borealis will commence, and gradually ascend until this collects into a pointed cone at the mouth of the flask; when this has continued for half a minute, blow out the flame of the lamp, and the apex of fire that was formed at the mouth of the flask will rush down, forming beautiful illumined clouds of fire, rolling over each other for some time; and when these disappear, a splendid hemisphere of stars will present itself. After waiting a minute or two, light the lamp again, and nearly the same phenomena will be displayed as at the beginning. Let a repetition of lighting and blowing out the lamp be made for three or four times, so that the number of stars may be increased; and after the third or fourth act of blowing out the lamp, the internal surface of the flask will be dry. Many of the stars will shoot with great splendor from side to side, whilst others will appear and burst at the mouth of the flask. What liquid remains in the flask will serve for the same experiment three or four times, without adding any water. Care should be taken, after the operation is over, to put the flask in a cool and secure place.

STANARD'S PORTABLE FIELD FENCE.



Portable field fences are in very general use; and from the fact of their portability, being so easily adjusted or taken down, they are in general more valuable to the farmer than the fixed fence, because they enable him to alter the size of any of his fields just as occasion may require, or the amount of his live stock and the state of the produce market may demand. The one we are about to describe is an invention tending to increase their utility, by providing a very firm as well as portable fence.

In our engravings, Fig. 1 represents a side view of a portion of the panels of a fence, the posts being bisected as indicated by the line, *x x*, Fig. 2, which is a transverse vertical section of a panel, showing the improvement. The same letters indicate similar parts in each.

A A represent horizontal and parallel strips, which are nailed to the upper and lower ends of the post, B, the pickets, C, being nailed to these posts as usual, The strips, A, may be of any suitable length, corresponding to the distance between the posts, B. Each length or portion of fence formed by the strips are termed "panels," and these panels may be connected by "halving" the ends of the strips, overlapping the same, and having rods, *a*, pass vertically through them, as shown plainly in Fig. 1. To the lower end of each post, B, there are attached two inclined bars or braces, D D, the lower ends of which are connected by cross ties, E E; the bars or braces and cross ties form the bases or sills of the posts. F represents stakes which are driven in the ground where the fence is to be placed or erected, the distance between each corresponding to the distance between the posts, B. Through the upper end of each stake, a mortise, *b*, is cut, and the stakes are made of such a thickness that they may fit between the cross ties, E, of the braces of the posts, the upper ends of the mortises, *b*, in the stakes extending sufficiently above the cross ties, E, to allow wedges, G, to be driven through them.

The wedges, G, secure the posts, B, firmly to the stakes, and the lower ends of the bars or braces, D D, rest upon the ground or stones prepared for them, and serve to support the posts, preventing any lateral movement or rocking of the same.

This fence may be quickly put up and taken down by persons not possessing much, if any, mechanical skill; it may also be cheaply constructed, and is equally as durable as any ordinary picket fence.

It is the invention of H. T. Stanard, of Wayne, Mich., who will give any information that may be desired. It was patented December 22, 1857.

Bad Shoe Leather.

A correspondent writing to us from Boonville, Ark., complains bitterly and justly of the miserable character of the leather employed in common boots and shoes. He states that public opinion, or special law, should be brought to bear in putting down the use of split leather for feet clothing—it may answer well enough for carriage tops and cushions. He says: "Good leather, if left whole, is tenacious, and nearly waterproof, but when split, its tenacity and water-proof quality are destroyed. If we take a thick piece of woolen cloth, and split it through the middle, how long will it last? It will soon go to shreds. It is the same in degree with leather; the fibres of it are interlaced, and bound firmly together, but by splitting, they are severed, and their mechanical adhesiveness destroyed." He complains severely of the boots and shoes made in the East, and sent to Alabama. He says: "One of every pair of shoes is generally made with a bad forepart and a good hindpart, and the other *vice versa*;" the result is that the one with the bad forepart is much sooner worn out than the other, but both have to be thrown away together. "I need annually," he says, "six pairs of this miserable sort of *store shoes*, costing here about two dollars per pair; and from the very start they cannot keep my feet dry, all because they are made of split, and ill-selected leather. If the leather were not split, it would last twice as long. If I could get better leather (unsplit), I could afford to pay a higher price for it, and it would not cost me any more for shoes per annum, because I would not require so many pairs; at the same time it would be much better for me, because they would keep my feet dry."

Our correspondent, we believe, has good reasons for complaint in regard to the use of split leather in shoes. But who is to blame for this? Shoemakers furnish just such goods as the market purchasers demand; some cheap and poor—others good, and of high price. If storekeepers would not buy poor shoes, of course manufacturers would not make them.

A Prominent Man of Science Gone.

Sir George Cayley, recently (Dec. 15) deceased in England, at the advanced age of 84 years, was a prominent inventor and a man of science. He invented a hot air engine, long before the *Ericsson* was dreamed of, and so enthusiastic was he in the belief that air was superior to steam as a motive agent, that he made experiments in the hope of perfecting his engine up to a period close upon his decease. Many eminent inventors and men of science, like Sir George, oftentimes get upon the wrong track, and go round and round in the same path, like the moon around the earth, and yet think they are going ahead—always advancing—because they keep the same face to the great center of attraction. He was a firm believer in the ultimate success of electricity as a motive agent in machinery, and he invented a very excellent instrument used in London for examinations of impure waters, such as those of the river Thames.

Coal and Cinder Sifter.

A great quantity of fuel, in the form of half-burnt cinders and small cool, is wasted in every household. To save the greatest part of this, S. Adams, of Boston, Mass., has invented a cinder and coal sifter, consisting of a circular riddle attached to a spindle, which can be rotated by hand, and passes through a cover, by whose means it can be placed on the top of the ash barrel, and the dust sifted into it, while the unburnt cinders and small coal are saved. It was patented Sept. 8, 1857. It is a very useful article.

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